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UNIVERSITY OF ALBERTA

CLEFTING, CONTRASTIVE STRESS, AND FOCUS: AN EXPERIMENTAL STUDY

by

BRUCE MILLAR

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Clefting, Contrastive Stress, and Focus: An Experimental Study", submitted by Bruce Fraser Millar in partial fulfilment of the Master of Science in Psycholinguistics.

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DEDICATION

To Diane Charlotte Kilby,

No Comment

ABSTRACT

This study is an experimental investigation of focus and the cleft sentence family. The role of focus in current grammatical descriptions of the cleft sentence family and of contrastive stress is presented. An experiment was performed to determine whether naive subjects interpreted clefting in a manner similar to contrastive stress.

Subjects were presented with pairs of sentences consisting of a contrastively stressed sentence and a cleft sentence. The subjects' task was to rate the degree to which the sentences emphasized the same constituent to the same degree.

An analysis of the data showed that clefting was considered to be similar to contrastive stress but that the subjects differed in their interpretation of individual members of the cleft sentence family. The study concluded with a discussion of some implications for grammatical descriptions and the study of language in general.

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CHAPTER ONE

INTRODUCTION

In this study a class of sentence constructions is investigated. The individual members of this class of constructions have been grouped together to form this class according to linguists' "intuitions". In the present study these intuitions are compared with what subjects do in an experimental situation.

In the linguistic literature, certain classes of sentences have been identified as syntactic variants. These sentences are structurally related but differ in the contexts in which they occur. (See Chafe, 1970; Fletcher, 1973; Prideaux, 1972) For example the sentence 'John hit Mary' has eight syntactic variants. They are:

(1) It was John that hit Mary.
(cleft sentence, clefted subject)

(2) The one who hit Mary was John.
(pseudocleft sentence, clefted subject)

(3) John was the one who hit Mary.
(reverse pseudocleft sentence, clefted subject)

(4) It was Mary that John hit.
(cleft sentence, clefted object)

(5) The one who(m) John hit was Mary.
(pseudocleft sentence, clefted object)

(6) Mary was the one who(m) John hit.

(reverse pseudocleft sentence, clefted object)

(7) JOHN hit Mary.

(contrastively stressed subject)

(8) John hit MARY.

(contrastively stressed object)

The first six of these variants belong to what is known as the cleft sentence family. The last two sentences belong to the contrastively stressed sentence family.[1] Linguists have attempted to formulate sets of characteristics which determine the choice of one of the stylistic variants. It has been claimed, for example, that the cleft sentences and the contrastively stressed sentences differ in their focus of attention (Chomsky, 1971). The focus of attention or, more simply, the focus of the sentence, can be defined as that constituent that bears the most important piece of information in the sentence.

The paradigm case of an information transferring process in natural language is the question and answer sequence where an appropriate answer can be characterised as providing the piece of information that is requested by the question. This observation has been developed into an operational means of determining the focus of a sentence which can be called the Question Test (see Hatcher, 1956 a, b). Sentences which grammatically signal one constituent as focus while the question which they are supposed

---

1 This does not exhaust the total number of members in either of these two sentence families.

to be answering indicates that another constituent is the focus, will be rejected as inappropriate by native speakers. When the information requested and the grammatically signalled focus coincide, the answer will be accepted by native speakers (Fletcher, 1973; Sgall, Hajiacova & Benesova, 1973).

The question

(9) Who hit Mary?

is appropriately answered by

(10) It was John who hit Mary.

and

(11) JOHN hit Mary.

but it is not appropriately answered by

(12) It was Mary that John hit.

or

(13) John hit MARY.

Thus, various members of the cleft sentence family and the contrastively stressed family can be distinguished as focus alternates, the focus being signalled by the contrastive stress in the contrastively stressed sentence and the clefting signalling the focus in the cleft sentence. Contrastive stress is a purely prosodic device. The cleft sentences use a combination of prosodic and structural

characteristics. The cleft sentence uses a combination of the "it is ..." construction and emphasis on the clefted constituent to signal the focusing. The pseudocleft and the reverse pseudocleft sentences use the coreferential noun phrase "the one ..." and emphasis to signal the focused constituent.

The interpretation of the cleft sentence family as focusing devices has been only partially confirmed by a recent study by Fletcher (1973). He found that not all people identified the same sentence constructions as focusing devices. He identified three distinct groups of subjects: one group which did not view any members of the cleft sentence family as focusing devices, one group which only viewed the cleft and the reverse pseudocleft sentences as focusing devices, and a third group which viewed all cleft sentences as focusing devices.

The results of Fletcher's study present a problem for the linguist. Assuming that the grammars which linguists construct reflect some characteristics of native speakers' use of their language, Fletcher's results suggest that linguists have to construct one theory of focus for one group of subjects and another theory for another. This runs counter to the claim of transformational grammar that the theoretical constructs used in devising a description of a language should be associated with all speakers of a language.

Before this dilemma can be solved, it would be helpful to know whether the groups of subjects identified were

quirks of the experimental task that was performed in Fletcher's experiment or whether these groups are a characteristic of the population at large. An alternate means of exploring the notion of focus is required. If using this alternate means, comparable patterns of response are found, the approach taken by the transformationalists to the study of focus will have to be revised.

Such a means has been provided by the work of Andrew (1974). She investigated the role of linear ordering and contrastive stress in the assignment of importance of elements in the sentence. As focus is associated with the most communicatively important item in a sentence, Andrew's results and measurements can be compared with other focus studies and thus, be used to study the focusing characteristics of the cleft sentence family. If a member of the cleft sentence family gives the same emphasis to its most important element as a contrastively stressed sentence gives to its most important element, then the cleft sentence will be considered to be a focusing device. In this way some of the characteristics of the way in which English speakers interpret the cleft sentence family can be investigated.

This study is an attempt to relate various cleft sentence structures to contrastive stress structures in terms of the concept of focus. In Chapter Two, the linguistic literature dealing with the cleft sentence family and the contrastive sentence family is reviewed. In Chapter Three, a discussion of the previous experimental literature deal-

ing with these structures is presented. In Chapter Four, the details of the experimental procedure are outlined. In Chapter Five, the results of the experiment are summarised and discussed in terms of the notion of focus and subject strategies.

CHAPTER TWO

THEORETICAL LITERATURE

In this chapter the linguistic literature associated with the cleft sentence family and the contrastive stress family is reviewed. The linguistic literature provides a collection of observations that have been made on the structural or formal characteristics of the cleft and contrastive stress constructions. These observations have been based on either the intuitions of a linguist or some traditional linguistic view. As such, the claims provided in such a collection can be used to define a large set of possible interpretations of linguistic structures that may or may not be held by nonlinguists.

The cleft sentence family has formed an area of investigation for many different grammatical schools. As a result of this historical fact many different sorts of descriptions have been constructed to account for the observed structural and semantic parallels among members of the cleft sentence family. Rather than survey the nature of these various types of descriptions, the observations that have been used to motivate the grammatical descriptions shall be studied.

The theories that have been constructed to describe focus and the cleft sentence family can be broken down into

those which are syntactically based and those which are non-syntactically based. The syntactically based analyses have been provided by the Transformational and the London Schools. The non-syntactically based treatment which was reviewed was that of the Prague School. The syntactic theories which have provided a systematic analysis of the cleft sentence family are presented first.

The study of focus and the cleft sentence family has involved the study of four distinct but related phenomena: focus, presupposition, topic, and comment. The topic-comment distinction was historically the first distinction to be put forward (see Sandmann, 1954 and Jespersen, 1911). According to the topic-comment analysis, the sentence is viewed as consisting of a "topic" or that which is being talked about, and a "comment" which contains what is said about the topic.

Transformational School

In Aspects of the Theory of Syntax, Chomsky (1965) suggested that one could use the surface structure of a sentence to partition the sentence into topic and comment. The topic was functionally defined as the information under discussion while the comment was defined as the information which was to be transferred about that topic. Chomsky suggested that the topic was structurally defined as the leftmost NP that was directly dominated by the major S node of the sentence. Thus cleft transformations, which shift an NP to this leftmost position, could be considered as to-

picalisation devices. This analysis, which was originally contained in a footnote in Chomsky (1965, p. 212), was not further developed by Chomsky, but rather was eclipsed by Chomsky's analysis terms of focus and presupposition.

The question-and-answer sequence played a vital role in the development of the focus-presuppositional analysis. Chomsky (1971) presented the question-answer sequence as an operational method of determining the focus-presupposition relationship. In his analysis he argued that an appropriate answer to a question must share the presuppositions of that question. He argues, for example, that the sentence:

(1) Is it John who writes poetry?

has the natural responses

(2) It isn't John who writes poetry.

(3) No, it is Bill who writes poetry.

The two types of question response pairs, (1)-(2) and (1)-(3), are asserted to share the same presuppositions. In discussing the difference Chomsky claims that (1971,p. 199):

> The sentence (3) is a possible answer to (1) and a corroboration of (2). The semantic representation (2) must indicate in some manner that "John" is the focus of the sentence and the sentence expresses the presupposition that someone writes poetry. In the natural response (2), the presupposition of (3) is identical, only the focus differs. On the other hand, a response such as (4) does not express the presupposition of (1).

(4). No, John writes short stories.

Thus sentence (4) would be considered to be an inappropriate response to question (1) since the presuppositions of (1) are not shared by (4). The question-answer sequence was used as a heuristic in presuppositional analysis. The WH-form in the question was associated with the focused element of the answer, while the presupposition was associated to the information common to both the question and the answer. With a given form of declarative sentence, one could automatically associate a hypothetical underlying question. The declarative sentence could then be considered to be one of a set of potential appropriate answers to that question.[1] Chomsky claimed that the focus-presupposition analysis could be determined from the surface structure. A mechanical heuristic was proposed for the determination of focus: the focus of the sentence was defined as the constituent carrying the highest stress, according to the phonological rules in The Sound Patterns of the English (Chomsky and Halle, 1968). In this way the surface structure could be used by the interpretative component of the grammar to determine the focus and the presuppositions that were to be associated with the sentence, while the Question Test could be used as an independant means to confirm this assignment.

---

1 The Question Test has been criticised for its stronger ability to characterise inappropriate answers as compared to its ability to characterise appropriate answers (see Sgaal, Hajiacova & Benesova, 1973).

Chomsky's surface theory of focus was faced with three types of criticisms. The first was that based upon supposed inadequacies of the Chomsky-Halle (1968) phonology. If the phonological theory presented by Chomsky is incapable of dealing with a certain class of sentences the focus theory which was predicated on the phonological theory would also be inadequate. The second type of criticism concerned the claim that in centering much of his analysis on the focus-presupposition dichotomy, some important insights into the English language that arise from the topic-comment analysis would be overlooked. The third type of criticism was based on the intuition that a more elaborate semantic representation than that of Chomsky was required for the accurate characterization of the focus of a sentence.

One of the first areas to come under criticism was the mechanics of the phonological component as constructed by Chomsky and Halle. The criticisms came from many directions, from the generative semanticists such as Lakoff (1970), from standard theory revisionists such as Chambers (1970), and from phonologists such as Schmerling (1974). Each of the criticisms was based on the claim that the Chomsky and Halle phonological theory was incapable dealing with what is known as a second instance sentence. In the following pair of sentences, the second sentence is a second instance sentence.

(5) John kicked Mary

(6) No, PETER kicked Mary.

Bolinger (1952), the originator of this first and second instance terminology, claimed that the second instance sentence was of secondary importance within the goals of establishing a solid linguistic description. He says "... since the other type of sentence (the second instance sentence) is imitative, it is of secondary importance ...[Bolinger, 1952, p. 286]". The second instance sentence has three characteristics. First of all, it is uttered in direct opposition to a preceding sentence. Secondly, it is identical to its antecedent except for the substitution of a constituent which is the source of the opposition. Finally, this opposition is signalled by the high stress that the contrasting element receives. Thus, while the second instance sentence may be considered to be of secondary importance with respect to the structural patterns of the language, it is of primary importance to the language user.

Chomsky, on the other hand, assumed that contrastive stress was a significant aspect of English but he suggested that it was a "special grammatical process of a poorly understood sort [Chomsky, 1971, p.199]". The problem acknowledged by Chomsky was that the phonological description he had constructed to predict "normal" stress was incapable of describing contrastive stress. However, he also suggested that once a sufficiently powerful phonological component had been constructed, his interpretive

semantic component would accurately supply the correct focus and presuppositional analysis on the basis of the surface phonological representations. The semantic component would predict that the contrastively stressed element would be identified as the focus while the rest of the sentence would be associated with the presuppositions. Thus, while Chomsky's syntactic and phonological component might not be able to predict the occurence of contrastive stressing, his semantic component would be able to interpret it. While true, this reply to the criticism is vacuous in that it does not come to grips with the problem which was the prediction not the interpretation of contrastive stress.

The second potential problem area in Chomsky's analysis arises out of the possible zealousness of his followers to claim that the focus-presuppositional analysis was the only analysis to be used in the study of the organization of the semantic content in the sentence. It was suggested that the topic-comment analysis had provided a valuable insight into the functioning of the English sentence. Certain linguists attempted to reintroduce a notion of topic into the focus-presupposition area of research. In other words, it was argued that the focus-presupposition dichotomy had to be replaced with a focus, topic, and presupposition trichotomy. This type of analysis was first suggested by Fillmore (1968). He suggested that the focus-presuppositional analysis required two different types of focus, primary and secondary. In his anal-

ysis; secondary focus was close to the traditional notion of topic.

Chambers (1970), in his discussion of focused noun phrases argues that the dative and the passive transformations, which originally had been presented as members of a single class of (focus) transformations, could be seen as two distinct classes. The dative shift was presented as the true focus transformation while the passive transformation was relabelled as a topicalisation transformation. The dichotomy was put forward in the following observation (Chambers, 1970, p.66):

> What is apparently needed is a formal distinction in the grammar which reiterates the formal distinction between two distinguisable kinds of focus permutations, namely, those which prepose constituents and those which postpose constituents to the intonation center.

The arguments that are brought forward by Chambers for this dinstinction are formal in nature. The chief motivation is based on the observation that when using an _Aspects_ type of grammar in conjunction with a single set of focus rules, certain rule ordering problems result. If two different types of focus rules could be constructed, then these rule ordering problems would be bypassed. Furthermore, Chambers puts forward the suggestion that each sentence has a constituent labelled with a +TOPIC feature while the presence of a +FOCUS feature is optional.

Another attempt to reviatlise the topicalisation analysis is suggested by Lakoff (1971). Lakoff defines

the notion of topic along the following lines (Lakoff, 1971, p. 267): "Considerations would indicate that the notion of topic of a sentence is to be captured in the two-place predicate having the meaning of concerns or is about". He furthermore suggests that the notion of topic is related to the notion of presupposition. "If a set of presuppositions contains the two place predicate (concerns or is about) whole arguments are P (predicate) and some NP, then it will be presupposed that NP is the topic of P [Lakoff, 1971, p. 267]". Thus the notion of topic could be a special case of presupposition. The notion of topic as it is presented by Lakoff differs from that presented by Chambers and Chomsky. For Lakoff, the topic is not a surface structure phenomenon, but rather is based upon the semantic representation of the sentence.[2] Chambers argues that the topic is a mandatory constituent in all sentences and bases much of his analysis on NP movement rules. Lakoff argues for the notion of the optional topicalisation reflected in the semantic representation of the sentence. While they differ in the manner of incorporation of the notion of topic into the grammar, both Chambers and Lakoff would claim that the notion of topic is semantically important.

In the previous discussion, focusing was discussed

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2 Another possible treatment of topicalisation is that of Ross (1971) in which topicalisation is considered to be a higher predicate which can be roughly paraphrased as "I say to you that P about NP". See Saddock (1974) for a fuller treatment of this speech act analysis.

in terms of constituent focusing. Two problems exist with this type of analysis. The first is that while a constituent may be focused, not all of the lexical features associated with that constituent are necessarily focused. The second problem is a bit more complex in that what is focused in the constituent may have nothing to do with the lexical content of the focused constituent. The following sentence may make the first problem a little clearer.

(7) It was the monk, not the abbot, who clubbed the boy.

Using an Aspects type model, the features associated with the noun "monk" might be (+human, +animate, +male, ...). In sentence (7) the semantic feature (+male) associated with "monk" is of little importance. In other words, when a constituent is focused not all the semantic features associated with that constituent are focused.

The second problem also deals with the nature of the material which is focused by a focusing device. Upon examination of sentence (7) one is faced with the problem that it does not always make sense to suggest that a specific feature or a collection of features is generally focused. What is focused is the coreferentiality of the term 'monk' with the person who clubbed the boy. Lakoff (1971) attached this problem in his treatment of the following contrastively stressed sentence:

(8) The TALL girl left.

It is not the fact that the girl who left is tall that is being stressed in the above sentence, but rather that the girl who can be identified with the label "tall" is the person who left. Thus it is often inadequate to claim that a feature or a constituent is being focused but, rather, it is the coreffentiality that is being focused. These sentences can be said to be performing an indicative act.

This indicative aspect of focusing and contrastive stress is made explicit in the pseudocleft and the reverse pseudocleft sentence through the use of the noun phrase "the one". Consider the following paraphrases of sentence (8).

(9) The one who left was the tall girl.

(10) The tall girl was the one who left.

Such morphemic signalling by the use of "one" is not possible in the simple cleft sentence.

(11) It was the tall girl who left.

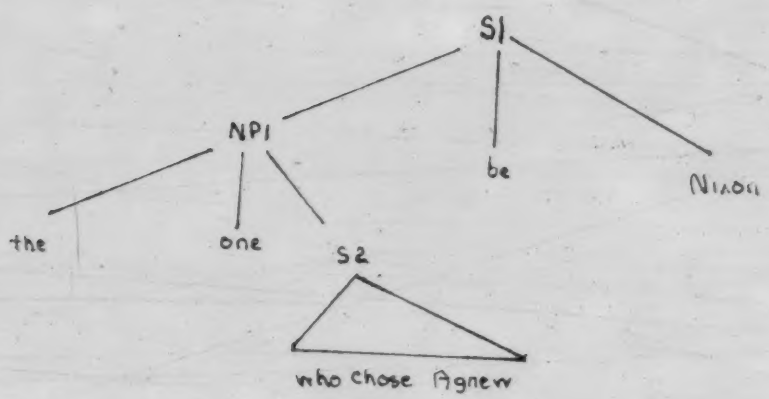
Some linguists (e.g., Akmajian, 1970; Moore, 1967; Nadaka, 1970; and Schmerling, 1974), in their analyses of the cleft sentence construction, have tacitly incorporated this aspect in their attempts to derive the cleft sentence from the "more basic" pseudocleft sentence. In most treatments, the basic motivation appears to be that the pseudocleft sentence is structurally more complex, and that it is

easier or at least more acceptable to delete structure than to build structure via transformations. The overt presence of the diectic aspect in the pseudocleft sentence is not stressed.

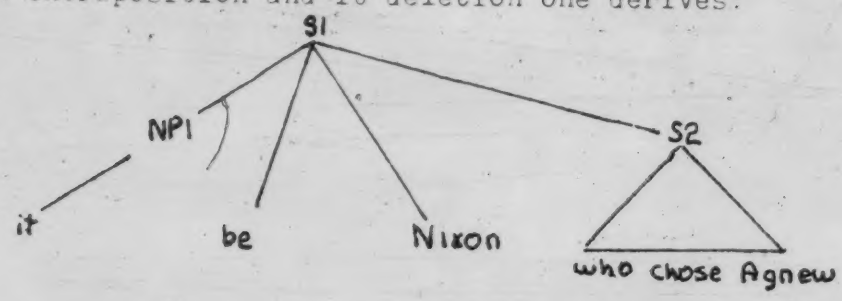
Akmajian (1970), in his analysis of the cleft and pseudocleft sentence, suggests that the sentence:

(12) The one who chose Agnew was Nixon.

has the following underlining structure.



Through extraposition and it deletion one derives:



Essential in this analysis is the coreferentiality or, rather, the identity, of the "the one who chose Agnew" and "Nixon". This sentence is related to the sentences

(13) It was Nixon.

and one interpretation of:

(14) Nixon was the one.

In summary, the Transformational School with its structural treatment of focus and the cleft sentence family has emphasised two distinct aspects of the notion of focus. The first aspect of focusing is that it identifies the most important constituent in a sentence. The second aspect of focus is that the focused constituent, if it is a noun phrase, has a smaller range of specification than the nonfocused noun phrases. The focusing of a constituent has certain pragmatic implications. These two aspects of the notion of focus are also developed by the Prague School and the London School.

The London School

Lees (1963) has characterized the neogrammarians as attempting to isolate parts of the sentence and to study the relationships between the parts. He contrasted this approach with the transformation grammarians who were interested in building a general theory of sentencehood. According to Lees' distinction, the London School would be closer to the neogrammarians than to the transformationalists.

The London School can be characterized by its development of a "functionalist" view of language structure. Cen-

tral to their approach is the isolation of different types of descriptions that can similtaneously apply to the same level. These different types of descriptions are then organized into different components of the grammar.[3]

In the present study of focus and the cleft sentence family, only the Thematic component of the grammar is relevant. Halliday has identified the Theme as follows (1968, p. 199):

> Theme is concerned with the information structures of the clause, with the status of elements not as participants in extralinguistic processes but as components of a message; with the relation with what has gone on before in the discourse and its internal organization into an act of communication.

Within the Thematic component Halliday isolates three distinct options for clauses. These are: the class of information-structure options, the class of identification options, and the theme-rheme options. Each of these options is studied in turn.

The information structure of the sentence is conveyed by its segmentation into tone groups, where a tone group is the prosodic unit of the sentence. Each of the tone groups is characterised by a stress peak. The constituent upon which this peak occurs is identified as focus of that information unit. For example, the focus of:

(15) //The boy saw the DOG //.

---

3 Parallels of this view to the Prague functionalist approach have been discussed in Halliday (1969).

is different from the focus of:

(16) // The BOY saw the dog //.

The number of tone groups within a sentence is also variable. The members of the cleft sentence family differ in their variability of tone group assignment. For example:

Cleft

(17) //It was the boy //who saw the play//.

Pseudocleft

(18) //The one who saw the play was the boy//.

or

(19) //The one who saw the play // was the boy//.

Reverse pseudocleft

(20) //The boy was the one// who saw the play//.

The pseudocleft sentence differs from the cleft and the reverse pseudocleft in that it normally can receive two distinct intonation patterns, both of which are acceptable.

If one attempts to alter the cleft sentence to form a single information unit, the resulting sentence is no longer considered to be a cleft sentence:

(21) //It was the boy who saw the play//.

For a sentence to be a cleft sentence, it must contain a nonrestrictive relative clause. By changing the tone

groups, the resulting sentence would be interpreted as a restrictive relative clause and, therefore, no longer a cleft sentence. Similar problems occur with the reverse pseudocleft sentences. If one attempts to alter the reverse pseudocleft sentence to form a single information unit, the resulting sentence has an unnatural intonation. Thus, with respect to the information options, the pseudocleft sentence is unique in its ability to take different information patterns.

The identification option, as it is analysed by Halliday, is based upon the distinction between identifier and the identified. Fundamental in the distinction between the identifier and the identified is the difference in acceptability between sentences of the form "X is Y" and "Y is X". Fletcher, in his thesis, pointed out that the sentence:

(22i) Paul is tall.

is more acceptable than the sentence:

(22ii) Tall is Paul.

This difference in acceptability is due to the difference in the scope of reference of the noun phrases in each sentence. "Paul" is a proper name and is usually taken to refer to an individual. The predicate "tall" is a general attribute and is used to refer to a large class of individuals.

Consider the following sentence pairs:

(23) John is my uncle.

(24) My uncle is John.

These sentences do not differ in acceptability to the same extent that sentences (22i) and (22ii) do. The difference is the scope of reference of "my uncle" and the proper name "John" is smaller than the scope of reference difference between "tall" and "Paul".[4] The identified constituent is the description with the more narrow specification while the identifier is the description with the more general specification.

Consider the following pairs of sentences:

(25) Paris is a capital.

(26) It is Paris that is a capital.

* (27) It is a capital that is Paris.

Within these sentences "Paris" is the identified while "a capital" is the identifier. Thus clefting is sensitive to the identifier-identified distinction. That is, only the identified constituent with its narrow scope of specification can be clefted or focused. It seems that the same phenomenon occurs with the other members of the cleft sen-

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4 This analysis differs from Halliday's. Halliday claims that a sharp distinction can be made between the attributive and the equational simplex copula sentence. The "Paul is tall" sentence is an attributive sentence. The "John is my uncle" sentence is an equational sentence. The problem of this type of analysis is that ideally an equative sentence should be perfectly reversable. Reversing (26) to form (27) does, however, result in a decrease in acceptability. One could then conclude that while the equational sentence is an interesting construct it is extremely rare in occurence.

tence family. In a sentence like:

(28) Mary is the boy's mother.

"Mary" is the identified while "the boy's mother" is the identifier. The cleft and the reverse pseudocleft forms of this sentence are as follows:

(29i) It is Mary who is the boy's mother.
? (29ii) It is the boy's mother who is Mary.
(30i) The one who is the boy's mother is Mary.
* (30ii) The one who is Mary is the boy's mother.
(31i) Mary is the one who is the boy's mother.
* (31ii) The boy's mother is the one who is Mary.

In all these cases it is noted that it is in the cleft sentence that the clefting of a constituent interacts with the identifier-identified structure of the sentence.[5] In other words, the noun phrase that is focused by a cleft sentence construction must have a narrow range of specification. This narrow specification is not the result of the cleft transformation but rather is a condition on the well-formedness of the output.[6]

The third option in the Thematic component is the theme-rheme distinction. This distinction has had a long career (see Sandmann, 1954).

The theme-rheme distinction as it has been propounded by Halliday has often been confused with the given-new

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5 This problem has been isolated by Lees (1963).
6 This was noted by Jesperson (1911) section 4.6.

information distinction. Halliday distinguishes between these two systems in the following manner (1968, p. 212):

> The difference can be summarized by the observation that while "given" means what you are talking about up to now (or what I was talking about before) theme means what I am talking about, (or what I am talking about now). And as any student of rhetoric knows, these two don't necessarily coincide.

Quirk has sharply distinguished between the thematic options and the information structure options. About theme and focus he states (1972, p. 945):

> Apart from the last stressed element in the clause structure (that which most naturally bears the information focus), the theme is the most important part of the clause from the point of view of its presentation of a message in sequence. ... The two communicatively prominent elements of the clause, the theme and the focus, are typically as distinct as can be. One is the point of initiation and the other is the point of completion.

The use of the terms theme and rheme in this model is more enlightening. The theme-rheme distinction is used by the London School to explain or, rather, to justify the existence of several different structures which have been commonly called paraphrases. The clause in such various sentences has been seen as being either marked or unmarked with respect to the thematic options. The most general characteristic of a sentence with a marked thematic option is that of fronting. (Note the similarity to Chomsky's and Chambers' use of the term "topic".) In this way question formation, the passive voice, initial adverbs, and various sentence inversions can be described in terms of

marked thematic options. The following sentences are considered to be marked thematic options:

(32) Peter viciously kicked the dog.

(33) What did Peter viciously kick?

(34) The dog was viciously kicked by Peter.

(35) Viciously Peter kicked the dog.

Along with these sentence types one might want to include the cleft sentence family. Consider the following sentences:

(36) John hit Peter.

(37) It was Peter who John hit.

(38) The one who John hit was Peter.

(39) Peter was the one who John hit.

Sentences (38) and (39) result from the clefting of the object of sentence (36). In each of these sentences the object is either front shifted or indicated by a fronted pronoun such as "the one". One cannot as easily interpret those sentences with a clefted subject as an instance of front shifting.

(40) It was John who hit Peter.

(41) The one who hit Peter was John.

(42) John was the one who hit Peter.

Normally an unmarked sentence such as sentence (36) has the subject in initial position. The subject clefted sentences also have an initial subject. In other words, based

on the surface structure of the cleft sentence, there has been no fronting during the clefting of the subject. What constitutes an unmarked initial NP in contrast to a marked initial NP has not been developed by the London School. In the discussion of the theme-rheme options, Halliday only discusses the significance of linear ordering. If one can assume that the linear ordering is the sole determinant of a marked or an unmarked thematic option, then one can conclude that sentences which cleft the object are thematically marked while those which cleft the subject are thematically unmarked.

Various conclusions on the cleft sentence family can be drawn from the London School's observations. In terms of the information options, Quirk et al. (1972) have commented that the most significant aspect of the cleft sentence family is that it divides the sentence into two units. This is directly interpretable in terms of the information structure which they propound. In other words, depending upon the actual utterance, the interpretation that subjects give to the pseudocleft sentence may vary.

The identificational options of the London School grammar suggests that one can study sentences according to their pragmatic interpretations. Some terms or predicates can apply to many objects in the real world, while others can only apply to a small number. It was observed that there was an interaction between the range of application of predicates and their ability to be clefted as noun phrases. This aspect of the cleft sentence family may be

incorporated into a pragmatic notion of focus.

Halliday's thematic option is the least motivated analysis of the cleft sentence family. It is essentially based on the analysis of which constituent occurs initially in the sentence. While the cleft sentence family may be able to be partitioned into those which front noun phrases and those which back them, to identify the initial noun phrase with the topic or theme of conversation requires further grammatical justification.

Nonsyntactic Treatment of The Cleft Sentence Family

The two previous treatments of the cleft sentence family have been sytactically based. The following sections will present what might be called a nonsyntactic theory of focus. The goal of this theory is "to make it possible to understand how the semantic and grammatical structures function in the very act of communication [Firbas, 1967, p. 137]".

The Prague School, under the rubic of Functional Sentence Perspective, has attempted to analyse the way in which information is transferred from speaker to hearer through the medium of written language. This involves the analysis of language into information units and the study of the way in which the information units are conveyed. One of the approaches used by the Prague School is the partition of sentence elements into those which contain the most central information in the message (the rheme)

and those elements which contain information which is peripheral to the message (the theme).

In Prague School terms, three factors are identified which determine the theme-rheme partition of an utterance. The most powerful of these is the context in which the utterance occurs. Material which has already been expressed in the context is automatically characterised as thematic. Material which is new in a discourse may be characterised as rhematic depending on its communicative function, which is determined in part by the other two factors, semantics and word order.

The second most important factor in determining the theme-rheme partition of the sentence is that of semantic content. The semantic content of a constituent can be characterised as being of primary or secondary importance. Certain constituents such as temporal and modal operators are generally considered to be of secondary importance. The deep subject and the deep object, to borrow the terminology of the Transformational School, are considered to be of primary importance.

The third factor which helps determine the theme-rheme distinction is the linear ordering of the utterance. Early investigators (see Tyl and Firbas, 1971) found that most sentences in Czech could be intuitively assigned a theme-rheme order. Furthermore, those sentences which violated this order, those which had a rheme-theme order, were located in contexts in which the writer was attempting to create an emotional effect. Following this observation,

Mathesius (1941) suggested that all sentences in a language like Czech could be partitioned into those which had an emotional or emotive ordering and those which had a non-emotive ordering. This same pattern was observed with what had been called synthetic languages which had relatively free word order although such patterns were not found to be as prominent in Modern English. It was claimed that this was due to the role of word order in English syntax. For example, the sentence:

(43) John hit Mary.

is not a stylistic variant of:

(44) Mary hit John.

"John" is the subject in the first sentence while "Mary" is the subject in the second sentence. It was suggested that English used other devices besides word order to establish the theme-rheme distinction. Nevertheless the order of theme-rheme is still considered to be the basic or unmarked word order.

The cleft sentence of English was considered to be such an emotive sentence. Firbas (1970) argued that the sentence:

It was yesterday that George flew to Prague.

had the word "yesterday" as a rheme. Firbas (1970, p. 127) claimed this was due to the "efficiency with which the "It is ... that" construction singles out yesterday for

particular attention, bringing it into relief". The actual means that the cleft construction uses to bring a constituent into relief are not further developed by Firbas. The reverse pseudocleft sentence can also probably be characterized as a means of bringing a constituent into relief. As the rheme in the reverse pseudocleft sentence occurs in initial position it would be classified as an emotive sentence. The pseudocleft sentence may bring an element into relief, but it does not front that element. A pronoun which refers to the element which is brought into relief occurs sentence initially but the constituent to which it refers occurs sentence finally. The pseudocleft sentence then, according to the Prague School analysis, might bring the clefted constituent into relief but it does not do so in an emphatic or emotive way.

A summary of the treatments of the cleft sentence family is now in order. In treating the cleft sentence family the notion of "focus" frequently recurs in different grammatical models. The primary notion of focus is found in Chomsky and his study of question and answer sequences. In his approach (as in Firbas' approach to rheme), the focus is associated with the most important information in the semantic representation. For a declarative sentence, the focus is operationally defined by the Question Test. However, both Chomsky and Firbas have stressed the importance of intonation as a reflex of focus or rheme. This treatment of focus differs sharply from that of Halliday.

Halliday, in his treatment of focus, makes no appeal to the semantic structure of a specific sentence. Rather he views the sentence as a signalling device in which certain so-called surface phenomena act as cues. In Halliday's view, the sentence can be partitioned into numerous combinations of information units, each unit being signalled by the use of stress, pitch, and pauses. In his treatment, a focus is associated with each and every information unit.

A third use of the term focus was alluded to in the discussion of the identification options in Halliday's thematic component. It was suggested that cleft sentences were in some manner constrained to focus only those noun-phrases which have a more narrow range of specification than the nonfocused noun-phrases. That is:

It is a capital that is Paris.

is a poorly formed sentence. In this sentence, the noun phrase "a capital" was in some sense a broader description than the proper name "Paris". Here the use of the term focus is associated with the use of the sentence to reference objects in the real world, or, more succinctly, the pragmantics of English.

These notions of focus have been derived by linguists by studying their own intuitions as so-called native speakers. In this section it can be seen that while the interpretations and theories constructed have been very elaborate, the actual number of characteristics used in constructing these intuitions has been very small. Most of the

intuitions have been based on observations of either linear ordering, intonation patterns, cooccurence restrictions and what has been labelled as "morphemic signalling". It is possible that nonlinguists also may be sensitive to these devices. Before turning to this empirical question, however, the characteristics of the other focus device, contrastive stress, is reviewed.

Contrastive Stress

In the introductory chapter, emphatic stressing was introduced as a means of highlighting or emphasizing a constituent of a sentence. In this section, this class of prosodic devices will be studied.

The contrastively stressed sentence has been functionally characterized as being "used by a speaker to mark a constituent as being in contrast with another structurally identical constituent [Harries, 1973, p. 86]". This traditional view, as expressed by linguists such as Bolinger (1972), Danes (1967), and Firbas (1967), has three claims associated with it.

These are:

(i) Contrastively stressed sentences are pairable with corresponding noncontrastively stressed sentences.

(ii) Contrastive stress signals a contradiction.

(iii) Contrastive stress can be distinguished from so-called "thematic" stress.

The most general claim is that each contrastively stressed sentence can be paired with a noncontrastively stressed sentence. The sentences in the pair have identical form but differ in the intonation they receive, the contrastively stressed sentence being signalled by a highly stressed constituent. If either of these sentences does not exist in the English language then contrastive stress is not present. Thus sentences like the following example from Schmerling (1974):

(45) Even a two year old could do that.

which are always highly stressed and have no acceptable nonhighly stressed alternates cannot be considered to be contrastively stressed sentences. Rather, they are just highly stressed sentences.

The second claim is that a contrastively stressed sentence structurally parallels another sentence and that the contrastively stressed sentence contradicts some elements of this sentence. A traditional problem associated with this claim is that emphatically stressed sentences are used in contexts where the pre-existing parallel sentence is not explicit. Linguists have sought to establish some domain in which the parallel structures are found. Many different types of solutions have been offered. These have varied from the formally motivated ones in which the contrastive stress is formally marked in the deep structure (see Sanders, 1971) to solutions that claimed that the fundamental distinction was whether or not the missing sen-

tence was in the speaker's mind (see Chafe, 1974).

These approaches are premature in the sense that they assume that the role of contrastive stress in English is well understood and that the linguist's task is to represent this knowledge. Few studies of the role of contrastive stress in the English language have been carried out. Notable exceptions are the work of Gruber (1968) and Hornby (1973) who studied the use of contrastive stress in children. A useful approach to this phenomenon is one in which the native speakers' use and interpretation of contrastively stressed sentences are taken into consideration. Rather than construct an abstract representation which triggers contrastive stress based upon one's intuitions, one can ask what causes subjects to produce a contrastive stressed sentence and what causes a subject to interpret a sentence as being contrastively stressed. Greater understanding of the role of contrastive stressing in English would greatly help in determining the role of contrastive stress in the grammar of English. Questions of incorporation contrastive stressing into a grammar can only be answered when a finer description of language behavior has been established to replace the speculation outlined above.

The third and the most tenuous claim in the literature is that subjects will interpret the prominence pattern of emphatic stress as being different from all other types of stress. Along these lines, Bolinger (1952) has suggested that, by dividing the sentence into units consisting of

the contrastively stressed syllable plus the following intonation, various interesting pitch patterns can be observed. Bolinger distinguishes two basic pitch patterns, Accent A and Accent B. Accent A consists of a terminal intonation fall while Accent B consists of a terminal intonation rise.[7] Bolinger has suggested that (1958, p. 214): "Accent A is assertive. It is used with items that are separately important and/or new to the discourse ... Accent B means something like incompleteness".

According to Bolinger's theory, sentence (46) is ambiguous in that it has two distinct paraphrases, (47) and (48):

(46) FRED doesn't write poetry in the garden.

(47) It is Fred who doesn't write poetry in the garden.

(48) It isn't Fred who does write poetry in the garden.

By specifying the intonation pattern of the whole sentence, the ambiguity is removed.

(49) Fred doesn't write poetry in the garden.

(50) Fred doesn't write poetry in the garden. (John does.)

In this case (49) is pronounced with Accent A while (50)

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7 The original distinction between Accent A and Accent B is found in the early works of the English rhetoric teachers. For example this distinction is found is Steel's Melody of English and John Walker's Elements of Elocution (1781, p. 14-16)

is pronounced with accent B, corresponding to (48).

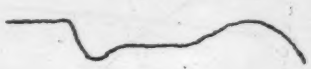
This semantic interpretation has been extended and developed by Jackendoff (1972) through the consideration of multifocus sentences. His claim is based on the interpretation of ditopical sentences such as:

(51) FRED ate the BEANS.

Different intonation patterns can be associated with the stressed constituents. The following question and answer sequences will illustrate the possibilities (the lines below the sentences indicate the intonation contours):

(52) Well what about Fred? What did HE eat?

(53) FRED ate the BEANS.



(54) What about the BEANS? Who ate THEM?

(55) FRED ate the BEANS.

In the first sentence pair "Fred" is already known. The question sequence is requesting information about "Fred". In the reply, the constituent "Fred" should be associated with an intonation pattern indicating incompleteness. That is, it should be associated with accent B. "Beans" on the other hand is new information since it is the information requested with the question. Thus "beans" is associated with accent A. In other words both Jackendoff and Bolinger would argue that there is more than one usage

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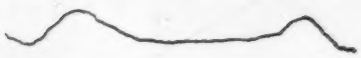
of emphatic stress and that this difference is a function of the type of information to be conveyed.

A similar view has also be expressed by Kuno (1972) who has attempted to identify four distinct types of sentences: thematic sentences, contrastive sentences, exhaustive listing sentences, and neutral descriptive sentences. He states that the following intonation patterns can characterise simple sentences performing these functions in English.

(56) Alexander kissed Mary. (theme)

(57) Alexander kissed Mary. (contrast)

(58) Alexander kissed Mary. (exhaustive listing)



(59) Alexander kissed Mary. (normal declarative)

Kuno explains his use of his terms with the following examples (1972, p. 297):

A (theme): 'Speaking of Alexander, he kissed Mary.'
B (contrast): 'Alexander kissed Mary but Bill didn't.'
C (exhaustive listing): 'It was Alexander who kissed Mary' As in "Who kissed Mary? (Only) Alexander kissed Mary."
D (neutral description): 'It happened that Alexander kissed Mary.' As in "What happened? Alexander kissed Mary."

Kuno argues that the word "Alexander" in the first three sentences (56) - (58) can be identified by special prominence and receives Accent A. The difference between each of these three types of sentences is reflected in the accent placed on "Mary". The thematic form receives Accent A, the contrastive form receives Accent B, and the exhaustive listing form receives a new accent, Accent M (where M stands for monotone).

Kuno, Bolinger, and Jackendoff all agree that the contrastively stressed constituent in a contrastively stressed sentence should receive Accent A. Kuno has suggested that thematic sentences should be terminated with an A Accent while contrastively stressed sentences should be terminated

with a B Accent. For contrastively or emphatically stressed initial noun phrases, this constraint provides no problems. Problems do arise, however, with the contrastively stressed final noun phrases. According to Bolinger's, Jackendoff's, and Kuno's claims, the stressed constituent should receive Accent A while according to the intonation pattern associated with contrastive stressing it should receive Accent B. One is faced with the difficulty in using and producing both accents on the same constituent. This might result in subjects attempting to avoid using contrastively emphasised sentences in which the contrastively stressed constituent occurs in terminal position. Subjects would have a tendency to use other means for contrastively highlighting objects (see Hornby, 1970).

In summary, it can be concluded that while contrastive stress is signalled by high stress, the understanding of how native speakers interpret contrastive stress is very weak. It should be remembered that the basic distinction between contrastive and emphatic stress is a functional distinction based upon grammarians' intuitions and linguistic tradition. Little experimental work has been performed. Nevertheless, both contrastive and emphatic stress share the characteristic of setting apart one constituent from its environment. While the difference between emphatic and contrastive stressing has received little experimental attention, much work has been done in the study of highlighting phenomena.

The interpretation of contrastive stress and the cleft

sentence family in experimental situations is investigated in the next chapter. These studies provide a contrast to the speculations of linguists that are based on their own intuitions.

CHAPTER THREE

PREVIOUS EXPERIMENTAL STUDIES

In this chapter the literture dealing with the experimental investigations of the cleft sentence family, the contrastive stress family, and focus will be reviewed. The experimental literature dealing with the cleft sentence family and contrastive stress family can be divided into three distinct areas: the study of topicalisation phenomena, the study of focus phenomena, and the study of presuppositional phenomena. The study of topicalisation phenomena is included in this study of the cleft sentence family to demonstrate that contrastive stress and clefting can be interpreted in other terms besides those of focusing devices. Furthermore, as Lakoff (1971) has suggested, the notion of the topic of a sentence might be a special type of presupposition.

Hornby (1970, 1971) and his colleagues have investigated topicalisation through the study of the way that subjects apply sentences to pictures. Given a sentence and two pictures, subjects are instructed to choose which of the pictures the sentence is about. Hornby argues that the notion of what a sentence is about corresponds to the topic of the sentence and that by studying subject's behavior, he can investigate the notion of topic.

The notion of focus has been explored in a recent thesis by Andrew (1974). The notion of focus has been associated with the "focus of attention" of the sentence by many grammarians (see Chapter Two). Andrew has argued that the focus of attention should be more salient than the nonfocused material in a sentence. Subjects were asked to identify the most important word in a sentence. From the results of the experiment she was able to discuss the relationship between focus, linear order, and contrastive stress.

In the Chomskian framework, the notion of focus is complemented by the notion of presupposition (see Chapter Two). In the transformational literature, two aspects of presuppositions have been discussed. The first aspect is the logical aspect of the presupposition and the role it plays in the assignment of a truth-value to a sentence. The second aspect is the relationship between presuppositions and "question-answer" sequences. Hornby (1973a, 1973b, 1974) has attempted to study the notion of presupposition through the study of the truth-value interpretation given sentences. This work is based on an experimental paradigm suggested by Hutchinson (1971). Hutchinson suggested that when given a fallacious sentence, subjects would be less sensitive to the error if it were expressed in the presupposition than if it were expressed in the focus of the sentence. In his experiments, subjects were presented with a sentence and a picture and asked if the picture accurately depicted the sentence. He compared the

error rates associated with various syntatic structures and discussed the results in terms of presupposition and focus.

Fletcher (1973), on the other hand, attempted to investigate the relationship between focus and presupposition as determined by the Question Test. Transformational linguists have suggested that an appropriate answer to a question shares the presuppositions of that question. By providing subjects with a question and having them choose the appropriate answer Fletcher attempted to characterize empirically the relationship between a question and its answer.

The experiments performed within each of these experimental paradigms are discussed in some detail below. While reviewing this work the reader should keep two questions in mind: First, what exactly are the experiments really measuring? Second, what relevance do the experimental results have for the language phenomena under investigation?

Hornby and Topicalisation

In his studies of the topicalisation devices of English, Hornby sought to compare the effectiveness of both the cleft and the pseudocleft sentence with that of contrastive stress. In order to do this he had first to establish the characteristics of the use of contrastive stress.

Hornby and Hass (1970) investigated the use of con-

[illegible] stress in children. Twenty children with a mean age of [illegible] were presented with 12 pairs of pictures. In each picture a human agent and a nonhuman object were depicted. The members in each pair differed in only one aspect: either the actors were different, or the objects being acted upon were different, or the action was different. The child was presented with the first picture and asked to describe what was happening in the picture. He or she was then shown the second picture with the first picture still in view and was requested to describe what was happening in that picture. The experimenters had hoped to induce the child to use a contrastively stressed sentence in the second picture presentation.

The children's responses were recorded and scored for the presence of contrastively stressed sentences. The frequency of use of contrastively stressed sentences was found to be higher in the second picture presentation than in the first picture presentation. The results were analysed using a two-way analysis of variance with picture order and the part of the sentences stressed as factors. The order of pictures was found to be a highly significant factor.

From the results of this experiment Hornby concluded (1970, p. 398):

> The general striking increase in the stress on the part of the sentence which refers to the contrasting element in the second picture shows that is possible to gain considerable control over this feature in children's speech ... In particular, it can be related to other grammatical devices employed by English

for marking the topic-comment distinction such as word order (active and passive voice) and grammatical structures (cleft and pseudocleft construction).

In subsequent experiments Hornby used contrastively stressed sentences as a baseline with which to refer other syntactic devices.

In a series of experiments, Hornby sought to study each of the various topicalisation devices as a function of age. Hornby (1971) studied the use of these devices by children in Grades 1, 3, and 5. Subjects were presented with a sentence and a pair of pictures. The subjects were then asked which picture the sentence was about. In each picture pair, one characteristic remained constant while the other two varied. A sample picture-pair might consist of one picture depicting a girl riding a bicycle and the other depicting a boy riding a horse. The experiment consisted of two parts. In the first part subjects were first aurally presented with a sentence and then presented with a pair of pictures. Neither picture corresponded to the sentence. They differed in either the agent or object or action depicted. Subjects were instructed to choose the picture which best depicted the sentence. In the second part of the experiment subjects were requested to correct the sentences so they corresponded to the picture.

A total of 30 sentences was presented. These consisted of six active sentences, six passive sentences, six cleft sentences, six pseudocleft sentences, and six contrastively stressed sentences. Three of the six cleft and

three of the six pseudocleft sentences clefted the subject while the other three clefted the object. Of the six contrastively stressed sentences presented, three stressed the subject while three stressed the verb. While the study had an equal number of tokens for each sentence type (i.e., cleft, pseudocleft, active, passive and stressed sentences), the constituents clefted or stressed were not matched. Thus it is difficult to make comparisons across sentence types, especially when no other device investigated in this study was comparable to the contrastively stressed verb.

The subjects' responses were categorized in terms of whether or not the pictures chosen contained the topic as determined by the grammatical form of the sentences. For active and passive sentences the topic was taken to the initial noun phrase in the sentence, while the comment was taken to be the final nounphrase in the sentence. In the cleft sentence the comment was taken to be the object of the "It is ..." clause and the topic was taken to be the other noun phrase in the sentence. In the pseudocleft sentence the topic was the introductory phrase and the comment was the grammatical object of the sentence. Finally, in the contrastively stressed sentence the topic was the non-contrastively stressed noun or verb while the comment was the stressed noun phrase.

In the first part of the experiment, the results show that the pseudocleft sentence was the first topicalisation device to be used and remained the strongest topicalisation

device for all age groups. The pseudocleft could then be interpreted as the paradigm topicalisation device. By Grade 6 all the devices except the standard active sentence were considered to be topicalisation devices as predicted in the theory. These results could have arisen from either the subjects' acquisition of a topic identification strategy, and/or an increase in the subjects' understanding of the experimental task. Irrespective of the source of the subjects' improvement, these results would suggest that something besides initial position is necessary for a constituent to be considered a topic.

In the second part of the experiment, the subjects' responses were categorized as to whether the new information occured in the topic or in the comment. The same criteria for topic-comment determination were used in this half of the experiment as had been used in the first half of the experiment. According to Halliday's linguistic theory the new information should occur in the comment.

Hornby analysed the correct use of the linguistic devices in terms of sentence type, age, and sex. It was observed that contrastive stress was the most frequently used device, though its frequency of usage decreased as a function of age. No overall increase in the frequency of correct score as a function of age was found. This would suggest that subjects are replacing contrastive stress with other linguistic devices as they mature. In a subsequent paper, Hornby (1972) performed a similar experiment with college students. As in the experiment above, subjects

were presented with a sentence and a pair of pictures and asked to identify the picture which best depicted the sentence. Seven different types of target sentence were used: active, passive, cleft object, cleft subject, pseudocleft object, pseudocleft subject, and contrastively stressed subject. Neither the contrastively stressed object nor the contrastively stressed verb were investigated.

Hornby interpreted the results of the experiments in terms of Halliday's Thematic grammar. Halliday suggested that one of the options in the Thematic structure of the sentence was the theme-rheme distinction. This distinction is purely a fuction of the linear order of the sentence. According to this analysis the theme is the initial noun phrase in the sentence. Halliday's analysis predicts that all the initial noun phrases would be chosen as a theme. This prediction was rejected by the experimental results.

Hornby suggests that the data are compatable with the information structure option of the Thematic component of Halliday's grammar. In this component, what is "new" and what is "old" is signalled by the intonation patterns of the sentence. Hornby claims (1972, p. 64):

> Halliday argues that the given new distinction is related to grammatical structure and intonation and only in the 'unmarked' case does the old precede the new. This analysis is consistent with the results.

While it may be the case that Hornby (1971) found that contrastive stress was associated with new information,

in no way does this experiment provide a context of discourse in which "old" and "new" information can be distinguished. In order to put forward such a view, one must first establish that in all cases the answer to "What is the sentence about?" in one experiment corresponds to "What is given or not-new?" in another experiment. In previous papers (Hornby and Hass, 1970 and Hornby, 1971), it has been argued that the notion of comment is associated with new information, but Hornby has not succeeded in showing in this experiment that old information corresponds to the topic.

Returning to the results of the 1972 experiment with college students, two groups of topicalisation devices can be distinguished, those in which the initial noun phrase is the topic and those in which a noninitial noun-phrase is the topic. Front topicalisation sentences consist of the active, passive, and pseudocleft subject, and the pseudocleft object. Back topicalisation sentences consist of the cleft subject, the cleft object and the stressed subject sentences. The experimental data indicate that these two classes of topicalisation devices differ in their strength, with the front topicalisation devices being more potent. This would suggest that linear order plays a role in the significance attributed to various sentence segments. The role of linear order in the interpretation of the cleft sentence family is discussed in more detail below.

Hornby has also investigated contrastive stressing

and clefting in terms of presupposition and focus. The presuppositions associated with a sentence are assumed to be true regardless of the truth-value of the sentence in which they are found. If a sentence can be viewed in terms of presupposition and statement, subjects should be more sensitive to the fallaciousness of the statement than they are to the fallaciousness of presupposition. In his work, Hornby presented subjects with a sentence and then tachistoscopically presented them with a single picture. Subjects were requested to state whether the sentences corresponded to the picture or not. Hornby argued that the difference in sensitivity to the discrepancies was interpretable in terms of the strength of a presupposing device.

There is a basic problem with this experimental paradigm. In the experiment Hornby was measuring the difference in sensitivity to the focused constituent and to a constituent which formed part of the presupposition. An increase in the difference could arise out of two sources, either the focus could become more salient or the presupposition could become less salient. Hornby assumes that the differences are in effect due to just the presupposition effect. The role of focusing is not questioned.

Using this design, Hornby studied the acquisition of so-called "presupposition phenomena" by children. The subjects consisted of 90 children, 30 of which were at each of three grade levels (Grade 2, Grade 5, and Grade 9). In the experiment, 30 sentence-picture pairs were presented

to the children. Each picture described a three-component event of a human actor acting upon a nonhuman object. Six of the pictures correctly depicted the event described in the sentence while the other 24 misrepresented it. Of the 24, 12 employed contrastive stress on either the object or the subject while the other 12 were cleft sentences which clefted the subject or object. At each grade level, subjects were randomly assigned to two groups. One group was given sentences in which the presupposed material was misrepresented while the other group was given sentences which misrepresented the focused material. Subjects were requested to say "yes" if the sentence corresponded to the picture and "no" if it did not. The difference between the two groups of subjects could arise from two sources. First is the presupposition-focus factor. Second is the random between group differences. Since the author wished to study the difference in saliency between focused and presupposed material such a confounding is unfortunate.

In his analysis, Hornby compared the error rates as a function of age, sentence type, and focus versus presupposed material. A three-way analysis of variance was performed. A three-way interaction between sentence type, grade level, and presupposition was also found. This was due to a lack of distinction between the focused and presupposed material in cleft sentences for Grade 2 and in the contrastively stressed sentences for Grade 9. According to the experimental paradigm, this lack of distinction of error rate between focused and presupposed material

would suggest that these constructions are not presupposing devices for those age groups.

Hornby notes an increase in the difference between the error rates associated with the focused and non-focused material for the sentence. He concludes that subjects are acquiring a presupposing device. While it is true for Grade 9 the difference between presupposition and focused material is large, this difference is due to a decrease in the error rate associated with the focused material in comparison with the Grade 5 focused material. There is no significant difference (at the 0.10 level) between the Grade 5 and the Grade 9 presupposed material. This would indicate the rather than acquiring a presupposing device it would appear that subjects are beginning to use the cleft sentence construction as a strong focusing construction.

In summary, Hornby has studied contrastive stress and the cleft sentence family from three points of view. First, he attempted to investigate the notion of topic by asking subjects to choose which picture best corresponded to a sentence. In this way he was able to investigate the notion of topic. It was observed that front topicalisation devices were more salient than back topicalisation devices. Second, he studied the use of devices in contrastive contexts. Third, he attempted to investigate the notion of presupposition through his analysis of subjects' errors in noting discrepancies between pictures and sentences. It has been shown that in these experimental tasks Hornby

was actually investigating saliency and focusing characteristics of sentences.

A Study of Linear Ordering

In a recent study, Andrew (1974) investigated the effect of linear ordering and contrastive stress on the basis of naive subjects' judgements of the most important constituent in a sentence. Subjects were presented with a simple dative sentences of the form:

(1) John gave the book to Andrew.

and a set of syntatic variants which arose from the passive and dative analogs:

(2) John gave Andrew the book.
(3) The book was given by John to Andrew.
(4) Andrew was given the book by John.

Four contrastive stress variants for each of these forms were also presented. For example, sentence (1) has the stress alternates:

(5) John gave the book to ANDREW.
(6) John GAVE the book to Andrew.
(7) JOHN gave the book to Andrew.
(8) John gave the BOOK to Andrew.

Subjects were to rank order the importance of each constituent in the sentence. They were instructed to rank

the words in accordance to their "importance to the meaning of the sentence". A '1' was given to the most important word in the sentence while a '4' was given to the least important word. No ties were permitted.

The rankings resulting from the experiment were analysed to determine whether differences in rankings assigned to the various sentences were significant and whether subjects were in basic agreement on the rankings. Sentences varied greatly in the degree of cross-subject agreement. In one-half of the sentences, subjects showed significant agreement. These sentences were characterized by contrastive stress on the first noun or the verb. Sentences which contrastively stressed the third or fourth noun phrase showed little subject agreement.

By studying the assignment of the most important constituent in each of the sentences, two sets of subject strategies were detected. Subjects either chose the initial noun phrase as the most important constituent or chose the contrastively stressed as the most important constituent. Those sentences in which these two conditions co-occurred as in:

(9) The BOOK was given to Andrew by John.

had high cross-subject agreement (84% chose "the book" as the most important constituent). Sentences in which these conditions did not co-occur, such as:

(10) Andrew was given the book by JOHN.

revealed a split in subject strategy, with 41% choosing the contrastively stressed constituent and 30% choosing first word. In all cases these two strategies can account for between 71% and 89% of the most important constituent assignments.

Results from the analysis of variance suggest that the effect of changes in linear ordering are more pronounced in non-contrastive normally stressed sentences than they are in contrastively stressed sentences. The differences in the importance rankings occurred with passive and the dative transformations were larger in nonstressed sentences than in contrastively stressed sentences.

Summarizing the work of Andrew (1974), one can conclude that the linear order of the sentence plays an overriding role in the interpretation of the sentence. Linear ordering together with contrastive stress was significant.

A Study of Questions and Answers

Complementary to the discussion of importance of sentence elements and to the study of topicalisation in the relationship between questions and their answers. It may be remembered that the notion of underlying question was used by Chomsky in his discussion of focus and presupposition. Fletcher (1973) attempted to investigate how the cleft sentence family, sentence voice, and systactic form of the questions and answers, interact to determine what is and what is not an appropriate answer to a question.

His experiment was baed on the assumption that a WH-question requests information about a specific sentence element and that an appropriate answer to such a question focuses the information that is requested. In this way any sentence which is identified as an appropriate answer to a given question can be viewed as a focus alternate.

Subjects were presented with 32 different sets of sentences composed of questions and answers. For each question there was a total of 12 possible answers which were members of the cleft sentence family. The sentences

(11) Nixon chose Agnew.

has twelve possible cleft forms:

(12) The one who Nixon chose was Agnew.
(pseudocleft active, clefted object)

(13) It was Agnew who Nixon chose.
(cleft active, clefted object)

(14) The one who was chosen by Nixon was Agnew.
(pseudocleft passive, clefted object)

(15) It was Agnew who was chosen by Nixon.
(cleft passive, clefted object)

(16) The one who chose Agnew was Nixon.
(pseudocleft active, clefted subject)

(17) It was Nixon who chose Agnew.
(cleft active, clefted subject)

(18) The one who Agnew was chosen by was Nixon.
(pseudocleft passive, clefted subject)

(19) It was Nixon who Agnew was chosen by.
(cleft passive, clefted subject)

(20) Agnew was the one who Nixon chose.
(reverse pseudocleft active, clefted object)

(21) Agnew was the one who was chosen by Nixon.
(reverse pseudocleft passive, clefted object)

(22) Nixon was the one who chose Agnew.
(reverse pseudocleft active, clefted subject)

(23) Nixon was the one who Agnew was chosen by.
(reverse pseudocleft passive, clefted subject)

Such an underlying sentences have four question types associated with it. The sentence:

(24) Nixon chose Agnew.

has the following questions associated with it:

(25) Who did Nixon Choose?
(requesting object, active voice)

(26) Who was chosen by Nixon?
(requesting object, passive voice)

(27) Who chose Agnew?
(requesting subject, active voice)

(28) Who was Agnew chosen by?
(requesting subject, passive voice)

In the experiment, subjects were presented with answer booklets. On each page there was a question and twelve possible answers. Subjects were instructed to choose as

many acceptable answers as they wanted. The subjects' responses were scored according to two conditions. The first condition was the preservation of voice across a question-answer pair and the second was the preservation of focus across the question-answer pair.

Three characteristics of subjects' responses were found. First subjects tended to maintain focus across question-answer pairs. Second, subjects showed no tendancy to maintain voice across sentence pairs, and third, there was a discrepancy between the total number of responses chosen in the pseudocleft response category and all other response categories.

In order to determine whether subjects differed in their response strategies, a hierarchal grouping analysis was performed. Three distinct subject groups were identified:

(i) a low focus group which manifested poor focusing behavior.

(ii) a high focus-low pseudocleft goup which viewed the cleft and reverse pseudocleft sentences as focusing devices.

(iii) a high focus-high pseudocleft goup which viewed all members of the cleft sentence family as focusing devices.

The low focus group consisted of 19 subjects who did not attempt to preserve focus across question-answer pairs. After analysing the behavior of this group, Fletcher was

forced to conclude that they were not responding in a systematic manner to anything that was controlled in the study.

The high focus-low pseudocleft group consisted of 19 members or approximately 31% of the study sample. There were two subgroups within this group. The first subgroup rarely chose the pseudocleft sentence on any occasion and when it did it responded in a random manner. The second subgroup (or 9 subjects) chose many pseudocleft sentences but manifested no systematic behavior. In the experiment, subjects were requested to read the pseudocleft sentences along with all other sentences to themselves. According to Firbas, one of the characteristics of a focusing device is that it partitions a sentence into two distinct sections. According to Halliday's analysis, the pseudocleft sentence is ambiguous in the number of information units it can contain. This ambiguity might be reflected in subjects' behavior. The second subgroup may have been inconsistent in the manner in which they were reading the sentences. This could result in the overall lack of systematic focusing behavior that was observed. Another possible source for their behavior is that members of this group associate focus with the initial constituents of a sentence. Irrespective of the origin of this low pseudocleft group, its existance provides evidence that for some people, while a sentence is structurally a member of the cleft sentence family, it is not necessarily interpreted as a focusing device.

The high focus groups represents the paradigm group

upon which linguists base their claim that all members of the cleft sentence family are in fact focusing devices. The group, which contained 38 members, treated all cleft sentences as focusing devices.

Fletcher's work suggests that not all subjects view the cleft sentence family in the same way. Furthermore, a small group of subjects does not seem to be sensitive to syntactic focusing devices at all. The goal of the present study is determine if this was the result of an idiosyncracy of an experiment task or a bona fide characteristic of the English speaking community. If the cleft sentence family could be approached through another task, then it might be possible to determine whether this was a result of subjects' interpretation of the cleft sentence family or whether it was a quirk of the experimental configuration. Contrastive stress supplies such an approach. Contrastive stress, like the cleft sentence family, has been identified as a focusing device. By comparing one focusing device with another it can be determined whether Fletcher's observations can be confirmed.

The work of Hornby and Haas (1970) suggested that contrastive stress is associated with the most important word in the sentence. Andrew's work suggested that contrastive stress acts as a cue for focus of attention for the first two noun phrases in English sentences. The present study's aim, like the aim of the program outlined in Hornby and Haas (1970), is to compare the subjects' use of the cleft sentence family with the use of the contrastively stresed

sentences. Using sentences of the basic form NP V NP, the effectiveness of contractive stressing with that of the cleft sentence family can be compared. An operational definition of focus and emphasis can be provided in order to relate members of the cleft sentence family to members of the contrastively stressed family. Given a cleft sentence which clefts a constituent C(j) and a stressed sentence which stresses constituent C(k), the cleft sentence can be considered to be a focusing device if it was judged to assign the same importance to its element as the stress sentence when j=k and different importance to its elements when j≠k. Furthermore, a cleft sentence would be considered to be an emphasing device when the sentence pair was judged to be closer in its meaning to the contrastively stressed sentence than to the normally stressed sentence. Such an emphasis device would be considered to be an extremely effective focus device.

Thus, by asking subjects to rate the similarity to which the cleft sentences and the contrastively stressed sentences emphasise the same thing, insight can be gained into the native speaker's use of English. In particular, the function of the members of the cleft sentence family can be compared to those of the contrastively stressed sentence family. Such an approach, which brings together two distinct kinds of sentences, is the basis for the experiment described in the next two chapters.

CHAPTER FOUR

METHOD

In the end of the last chapter, it was concluded that one might gain a better understanding of the cleft sentence family by asking subjects to compare cleft sentences with contrastively stressed sentences. In this chapter the details of such an experiment are described.

The Material

In the experiment, subjects were aurally presented with pairs of sentences. The first sentence, the target sentence, was a contrastively stressed simplex sentence. The second sentence, the stimulus sentence, was one of six types of cleft sentences under investigation. A typical target stimulus pair was:

(1) The TEACHER paid the pupil.
(2) It was the pupil that the teacher paid.

Three distinct aspects of the target sentence were controlled: the constituent stressed, the lexical type of the subject, and the lexical type of the object. Three types of sentence stress were investigated: subject stress as in sentence (2) above, object stress as in sentence (3)

below, and normal or no contrastive stress as in sentence (4) below.

(3) The teacher paid the PUPIL. (C,H,H)

(4) The teacher paid the pupil. (N,H,H)

The first symbol of the coding to the right of the sentence refers to the type of contrastive stressing: S for subject stress, C for object stress, and N for the normal or unstressed case.

The second and third symbols refer to the type of nouns that functioned as subject and object in the target sentence. As the present experiment is a study of the syntactic focusing devices, the effect of the lexical content of the sentence was not of experimental interest and the effect of lexical content was not investigated in this study. However the choice of the lexical items used in the experiment was controlled. The experimental stimuli were chosen so as to neutralise the effect of lexical content. This involved two steps. The first was not to choose emotive lexical items such as rape, incest, and murder. These emotionally charged items can colour the interpretation of the sentence in which they occur. The second was to use a balanced design in order to prevent drawing conclusions from a lexically-biased sample. Such a biasing could occur as a result of basing the experiment on a small subset of lexically homogeneous items. In order to prevent this, it was decided to base the study on sentences which contained different types of noun phrases. In

this experiment two categories of nouns were used. They were +human and -animate. Further more, in this experiment, all possible combinations of lexical type and noun functions were used:

(a) human subject and human object

(b) human subject and inanimate object

(c) inanimate subject and human object

(d) inanimate subject and inanimate object

This prevented the introduction of a systematic error due to the biasing of the lexical sample.

There are further considerations in the choice of the lexical items used in this experiment. Consider the following sentence:

(5) The plumber fixed the PIPE.

This sentence is considered odd by many native speakers of English in that they find it hard to imagine a context in which a plumber fixing a pipe is an emotive or emphatic event. Another instance of this phenomenon is the unacceptability of the sentence:

(6) The tiger licked the POSTMAN.

This sentence is rejected by many native speakers since they feel that the word 'licked' and not the word 'postman' should be emphasized. The experimenter is faced with the problem that many sentences which are acceptable when they are not contrastively stressed are rejected as odd by many

speakers when they are contrastively stressed. Contrastive stressing seems to interact with what Lakoff (1971) has called the "world view" or the native speakers. After submitting many sentences for evaluation to a group of subjects, the following sentences were chosen as acceptable sentences under all conditions of contrastive stressing used in this experiment. They were:

(i) The teahcer paid the pupil.
(ii) The trucker punched the policeman.
(iii) The major carried the captain.
(iv) The butler served the coffee.
(v) The technician kicked the computer.
(vi) The guard lost the key.
(vii) The lathe injured the machinist.
(viii) The acid poisoned the biologist.
(ix) The baseball hit the umpire.
(x) The ladder scraped the wall.
(xi) The fire cracked the grill.
(xii) The storm flooded the basement.

The combination of twelve basic sentences with the three types of stressing resulted in a total of thirty-six different target sentences.

The actual recordings of the target sentences used in the experiment were selected from a set of 216 sentences consisting of 6 different recordings of each of the 36 different target sentences. The original set of 216 target sentences was aurally presented to a total of 60 linguis-

tically naive subjects. The subjects were asked to identify which, if any, constituent was contrastively stressed and to indicate which sentences sounded 'unnatural'. The most highly preferred version of each of the target sentences was used in the final experiment.

The stimulus sentence was the second member of the sentence pair presented to the subjects. As previously mentioned, the second sentence in the stimulus pair was a cleft alternate of the target sentence. In each stimulus pair, the target sentence and the stimulus sentence have the same lexical form. However there are six cleft alternates for each lexical form. The target sentence:

(6) The teacher paid the pupil.

has the following cleft alternates associated with it.

(7) It was the teacher that paid the pupil.
(C,S,H,H)

(8) The one who paid the pupil was the teacher.
(PC,S,H,H)

(9) The teacher was the one who paid the pupil.
(RPC,S,H,H)

(10) It was the pupil that the teacher paid.
(C,O,H,H)

(11) The one who the teacher paid was the pupil.
(RC,O,H,H)

(12) The pupil was the one who the teacher paid.
(RPC,O,H,H)

The coding to the right of the stimulus sentence refers to the cleft type, the constituent clefted, the lexical category of the subject and the lexical category of the object. The first symbol refers to the cleft type, C is the simple cleft sentence, PC is the pseudocleft sentence, and RPC is the reverse pseudocleft sentence. The second symbol refers to the constituent clefted. S stands for a clefted subject while O stands for a clefted object. The two final symbols perform the same function as they did in the target sentences, referring to the lexical category of the subject and the object. As before H refers to a human noun and I refers to an inanimate noun.

In the literature (e.g. Nadaka, 1972; Akmajian, 1970; and Harries, 1973) two distinct forms of the pseudocleft and the reverse pseudocleft sentence have been identified. They are referred to as the full and the reduced forms. Consider the following sentence:

John bought the car.

This sentence has the following full and reduced forms:

(14) The one who bought the car was John.
(PC,SH,I,Full)

* (15) Who bought the car was John.
(PC,O,H,I, Reduced)

(16) John was the one who bought the car.
(RPC,S,H,I,Full)

(17) John was who bought the car.
(RPC,S,H,I,Reduced)

? (18) The thing John bought was the car.

(PC,O,H,I, Full)

(19) What John bought was the car.

(PC,O,H,I, Reduced)

(20) The car was the thing that John bought.

(RPC,O,H,I, Full)

(21) The car was what John bought.

(RPC,O,H,I, Reduced)

In an informal survey with eight linguistically naive subjects, sentence (15) was rejected as an acceptable declarative sentence while sentence (18) was viewed as "rather strange", to quote one subject's response. In other words, subjects found that a full pseudocleft sentence which clefted an inanimate noun phrase was unacceptable, as was a reduced pseudocleft sentence which clefted a human noun phrase. On the basis of these observations the form of the pseudocleft sentence used in the experiment depended upon the lexical type of the noun phrase being clefted. Full pseudoclefts and reverse pseudoclefts were used with human noun phrases. Reduced pseudoclefts and hence reverse pseudoclefts were used with inanimate noun phrases.

Despite these precautions, certain assymeteries existed in the sentences that were given to the subjects. This occurred with the choice of relative pronoun that was used in the cleft constructions which clefted +human subjects. In the pseudocleft and the reverse pseudocleft sentences "who " was used, while "that" was used in the cleft senten-

ces.

While there are no previous experimental results that indicate that the form of the pronoun should play a significant role in determining the focusing characteristics of a sentence, this assymetry in the experimental stimuli should be noted. The choice was based on preliminary evaluation by naive native speakers.

Each of the thirty-six different target sentences was paired with six corresponding stimulus sentences. Order of the presentation was randomized with the constraint that no two pairs with the same lexical content followed each other. A set of six practice pairs preceded the experimental pairs. A list of the experimental pairs is found in Appendix B.

Subjects

The subjects in this experiment were all university students. They had received no formal syntactic training beyond high school grammar. The subjects were drawn from four distinct sources. Forty-two were from the School of Household Economics' Clothing and Textiles 200 class. Forty-seven were from two classes in the Faculty of Education, 35 from the Ed. CI 224 class and 12 from the Ed. CI 421 class. Thirteen subjects were from the Department of Linguistics Ling. 382 class. The linguistics students had previously studied some phonology but at the time of experiment they could be considered to be syntactically

naive. The experiment was performed during regular class hours for all but the Ed. CI 224 students who participated in the experiment in a time which was normally a free period.

Procedure

The experimental sentences were recorded in two blocks on a tape recorder. Approximately 1.5 seconds separated the target sentence from the stimulus sentence. Ten seconds separated the stimulus pairs. The first block of sentences consisted of 120 sentence pairs and the second block consisted of 96 sentence pairs. All the subjects did the experiment in the same order.

Subjects were presented with two booklets. One of the booklets was the response booklet in which they recorded their responses. The other booklet contained the sentences used in the experiment. Two different types of sentence booklets were used. In one, both the target sentence and the stimulus were typed. In the other, only the target sentence was typed. Subjects were randomly assigned by the experimenter to a booklet. In each experimental session the same number of each type of response booklet was used.

Subjects were instructed to rate the degree to which the target sentence and the stimulus sentence emphasized the same word. A seven-point scale was used. Sentence ratings of 1, 2, 3, were used to indicate that the stimu-

lus sentence and the target sentence emphasized the same word. The ratings of 2, 6, 7, were used to indicate that the sentence emphasized different words. The rating of 4 was reserved for the undecided response. The choice between a rating of 1, 2, or 3 depended on the extent to which subjects felt that the target sentence and the stimulus sentence were emphasizing the same word to the same degree. 1 was given to those sentences which emphasized the same words to the same degree. The greater the difference in the degree of emphasis, the closer the rating was to 4. The same distinctions were used to determine the choice between the 2, 6, and 7 ratings. The value 7 was reserved for those sentences which sharply emphasized different words, while the values closer to 4 were used for those sentences which emphasized different words to a lesser degree.

Subjects recorded their responses by circling the number which corresponded to their rating. The entire experiment took approximately 50 minutes to complete. Due to the length of the experiment, the sentences were presented in the two blocks described above. The first block took 30 minutes. The second block took 20 minutes. The blocks were separated by a four minute break.

The data from the experiment were collected and analysed. The results of the analysis and the interpretation of the results are presented in the next chapter.

CHAPTER FIVE

RESULTS AND DISCUSSION

The results of the experiment were analysed with two goals in mind. The first was to determine if the subjects could be partitioned into groups according to their response strategies. The second was to identify the characteristics of the cleft sentence family.

In order to accomplish these goals, some preliminary adjustments to the data were performed. Different subjects used different ranges of values to rank the sentence-pair similarities. There were conservative raters whose highest ratings differed little from their lowest ratings and there were liberal raters who attempted to use all of the possible ratings provided in the study. In order to correct for this phenomenon which might confound the results, subjects' ratings were standardized so that an individual rating was expressed in terms of the standard deviation from their mean score.

In the methods section it was noted that two different forms of sentence booklets were used. One half of the subjects were randomly assigned to sentence booklets which contained both the target sentences, while the other half of the subjects were assigned to booklets which contained both the target and the stimulus sentences. A preliminary

analysis of variance was performed to determine whether the type of answer book was a significant factor. It was not found to be significant. Henceforth all calculations pooled the responses from each form of the answer book.

The experiment was designed to investigate the way in which subjects were sensitive to the syntactic characteristics of the members of the cleft sentence family. The experimental analysis was based on the study of four factors: the individual (I), the stress type of the target sentence (S), the constituent clefted in the stimulus sentence (C), and the syntactic type of the stimulus sentence (T). A fifth factor of the sentence stimuli, the lexical configuration, (L), was not of interest in this study. The lexical configuration factor was included to counter-balance any effects that might arise out of the lexical category of the nouns used in the sentences. In this study, investigation was centered around the study of the syntactic characteristics of the cleft family of sentence constructions. While it is likely that the lexical content of a sentence plays a role in the attribution of importance to the elements of a sentence, such problems were ignored in the present study since attention was directed towards syntactic differences.

A preliminary analysis of variance of the entire sample was performed in order to determine if there were significant between subject differences in the way that they responded to the experimental sentences. This necessitated the use of a nonstandard analysis of variance

in which the subject factor (I) was treated as a separate factor instead of being treated as replications of the other experimental factors. It was found that there was an interaction between the individual factor (I) and the other factors of interest namely, constituent stressed (S), constituent clefted (C), and the cleft type (T). This I x S x C x T interaction was significant at the $p<0.001$ level. This suggested that individuals were responding in different ways to the experimental stimuli. It was decided to test the experimental sample of subjects for the existence of subgroups of subjects who were using the same response strategy in the experiment.

In order to test for the existence of subgroups, subject response profiles were compared using a hierarchial clustering program (Veldman, 1968). The input to the program consisted of 18 entries per subject, each entry being the average response of a subject for each cleft type-stress type configurations. Subjects with similar response patterns were placed in the same group. The Veldman technique groups members of the sample in such a way that the total within-groups variance is minimally increased with the incorporation of a new member into a pre-existing group. The cutoff point for the number of groups was determined by graphing the within-group variance as a function of the number of groups.

Three groups of subjects were identified by the Veldman procedure. In order to identify the response strategies of the subjects in each subgroup, an analysis of var-

iance was performed on each subgroup. (The result of these analyses are found in Tables 2, 3, and 4). As in the analysis of the total experimental sample, the focus of the analysis was the relationship between the syntactic characteristics but not lexical characteristics of the contrastive stress and the cleft sentence families.

In the experiment, subjects could respond to three characteristics of the sentence pairs: stres S, constituent clefted C and the cleft type T. If subjects considered both clefting and contrastive stress to be focus devices, an analysis of variance would show that the S x C interaction would be significant. On the otherhand, if some cleft sentence types were better focusing devices than others, the S x C interactions would be a function of the cleft type T. The difference in effectiveness would be reflected in the significance of an S x C x T interaction in the analysis of variance.

By comparing the similarity ratings for pairs of sentences, one can gain an understanding of the effectiveness of individual cleft constructions. For a cleft construction to be a focusing device two conditions have to be met. The first is that a cleft sentence which clefts constituent Cn should be considered to be <u>similar</u> to the stress sentence which stresses the <u>same</u> constituent Cn. The second condition is that the cleft sentence which clefts the constituent Cn should be considered to be <u>different</u> from the contrastively stressed sentence which stresses a <u>different</u> constituent Ck. These two conditions for focus-

hood can be combined into a single focus criterion.

> Focus Criterion Given two similarity ratings, the similarity rating given a sentence pair which stresses and clefts the same constituent, and the similarity rating given a sentence pair which clefts and stress different constituents, the similarity rating for the pair which stresses and clefts the same constituent should be significantly larger than the similarity rating given the pair which clefts and stresses different constituents.

This criterion can be used to distinguish between those constructions which are viewed as focusing devices and those which are not.

Another measure of the effectiveness of a focusing cleft construction as a focusing device can be established. One can distinguish between those devices which are better focusing devices than the simplex sentence and those which are not. Those which are better emphasising devices than the simplex sentence can be called emphasis devices. This criterion is readily translatable into a statistical criterion.

> Emphasis Criterion Given two similarity ratings, the similarity rating given to a sentence pair which clefts and stresses the same constituent, and the similarity rating given a sentence pair consisting of a cleft sentence and an unstressed sentence; the similarity rating given the pair which clefts and stresses the same constituent should be significantly larger.

Thus the sentence

(1) It was John that hit Mary.

was a focusing device if it was rated as being more similar

to the sentence

(2) JOHN hit Mary.

than it was to

(3) John hit MARY.

On the other hand the sentence

(4) It was Peter that hit Paul.

was considered to be an emphasis device if it was considered to be more similar to the sentence

(5) PETER hit Paul.

than it was to

(6) Peter hit Paul.

In this report the terms focus and emphasis will be used in the technical sense of referring to a comparison of sentences means as described above. The definitions will be used to make a priori comparisons on the various sentence types.

Using these criteria, the three groups of subjects identified by the Veldman technique can be interpreted. (See Table 1)

The first group, the cleft-focus group, manifested strong cleft-stress matching. All members of the cleft sentence family were considered to be focusing devices. However pseudocleft sentences such as

(7) The one who paid the pupil was the teacher.

were not as effective focusing devices as the cleft sentence

(8) It was the teacher who paid the pupil.

or the reverse pseudocleft sentence

(9) The teacher was the one who paid the pupil.

While the cleft and the reverse pseudocleft sentences were considered to be both *focus* and *emphasis* devices, the pseudocleft sentence was only considered to be a *focus* device.

The second group, the linear order group, also manifested cleft-stress matching. Not all the sentences were effective focusing devices, in fact only the cleft and the reverse pseudocleft sentences were considered to be focusing devices. Thus the sentences

(10) It was the trucker who punched the policeman.

and

(11) The trucker was the one who punched the policeman.

focused the 'trucker' but

(12) The one who punched the policeman was the trucker.

did not. None of the cleft sentences were considered to be

emphasis devices.

The third group, the contrastive stress group, like the other two groups, manifested cleft-stress matching. While all the members of the cleft sentence family were effective as focus devices, none of the devices could be considered to be emphasis devices. For a summary of this group see Table 1.

The results of the analysis of variance of each of these three groups is discussed below in more detail in order to establish the probably response strategies used by each of the subgroups of subjects.

TABLE 1

A COMPARISON OF FOCUS AND EMPHASIS DEVICES IN EACH GROUP

Sentence Type	Cleft-Focus Group		Stress Group		Linear Order Group	
	Focus	Emphasis	Focus	Emphasis	Focus	Emphasis
Cleft Subject	F	E	F		F	
Pseudocleft Subject	F		F			
Reverse Pseudocleft Subject	F	E	F		F	
Cleft Object	F	E	F		F	
Pseudocleft Object	F		F			
Reverse Pseudocleft Object	F	E	F		F	

The Cleft-Focus Group

The cleft-focus group was the largest subgroup consisting of 38 subjects or approximately 53.5% of the sample. The results of the analysis of variance carried out on this group are reported in Table 2. In the ANOVA, the S x C x T interaction was significant ($p<0.001$), indicating that subjects were sensitive to clefting and contrastive stress but that the type of cleft sentence affected their judgement. From a comparison of means it was determined that the pseudocleft sentence was a focus device but that the other members of the cleft sentence family were both focus and emphasis devices. One could hypothesize that this difference in effectiveness could be due to the fact that the initial position of the sentence has a position of special prominence for the members of this group. Thus while the members of this group appear to be sensitive to the cleft constructions as focusing devices, they are also sensitive to the linear order of elements in the sentence.

The cleft-focus group forms a basis of comparison for the other subgroups. The cleft-focus group is most commonly alluded to by linguists such as Akmajian (1971), who seek to find structural parallels between the various members of the cleft sentence family. This does not mean, however, that this is the only group that exists in speakers of English. In this study two smaller subgroups were found. These subgroups are now discussed.

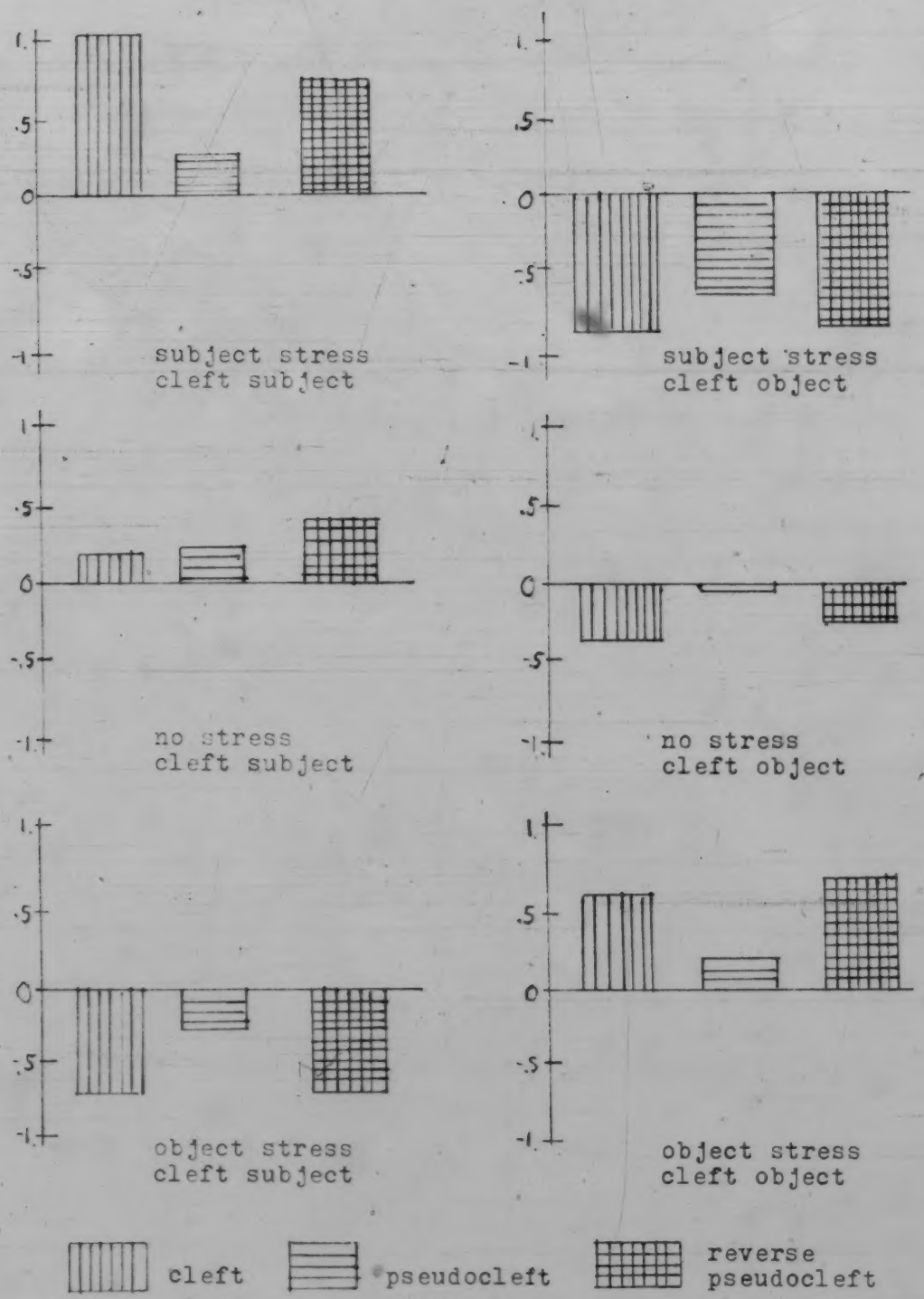


Figure 1. Mean standardized similarity ratings as a function of cleft and stress configuration for the Cleft Focus Group

TABLE 2

RESULTS OF ANOVA FOR CLEFT-FOCUS GROUP

Source	df	Mean Square	F	Sig.
Mean	1	0.034	0.001	ns
S(Stress)	2	0.323	5.269	0.01
C(NP clefted)	1	145.462	82.028	***
T(Cleft type)	2	1.414	0.807	ns
SC	2	1068.726	610.01	***
ST	4	12.794	7.303	***
CT	2	4.114	2.348	0.10
SCT	4	70.370	40.166	***
I(SCT)(Subjects)	666	1.751	3.034	***
R(ISCT)(Replications)	7524	0.577		

The Linear Order Group

The linear order group consisted of 16 members or approximately 22.6% of the sample population. The results of the analysis of variance for this group are presented in Table 3. In this analysis the S x C and the C x T interactions were found to be significant.

The S x C interaction suggested that subjects were matching clefting and stressing. This interaction, which was significant ($p<0.01$), suggests the subjects were viewing certain of the cleft sentences as focusing devices.

The linear-order group differed from the other subject groupings in the study by the presence of a large

C x T interactions (see Table 3) comparing the differences in the using Scheffé criterion for a posteriori comparisons, it was found that the cleft and reverse pseudocleft sentences which maintained the NP1-NP2 order of the contrastively stressed simplex sentences were considered to be more similar to the contrastively stressed sentences than those sentences which altered this NP1-NP2 ordering (see Figure 3). This pattern did not apply to the pseudocleft sentences which maintain the NP1-NP2 order when clefting the object, but violate it when clefting the subject.

The similtaneous presence of the C x T interaction and the S x C interaction suggest that subjects were sensitive to both clefting and linear order of elements. Subjects viewed only those sentences which <u>fronted</u> the clefted constituent as <u>focusing</u> devices (see Table 3). Thus, while this group was sensitive to certain clefting constructions, they were also very sensitive to linear order. Linear order played a far more significant role for subjects in this group than it did for subjects in the cleft-focus group.

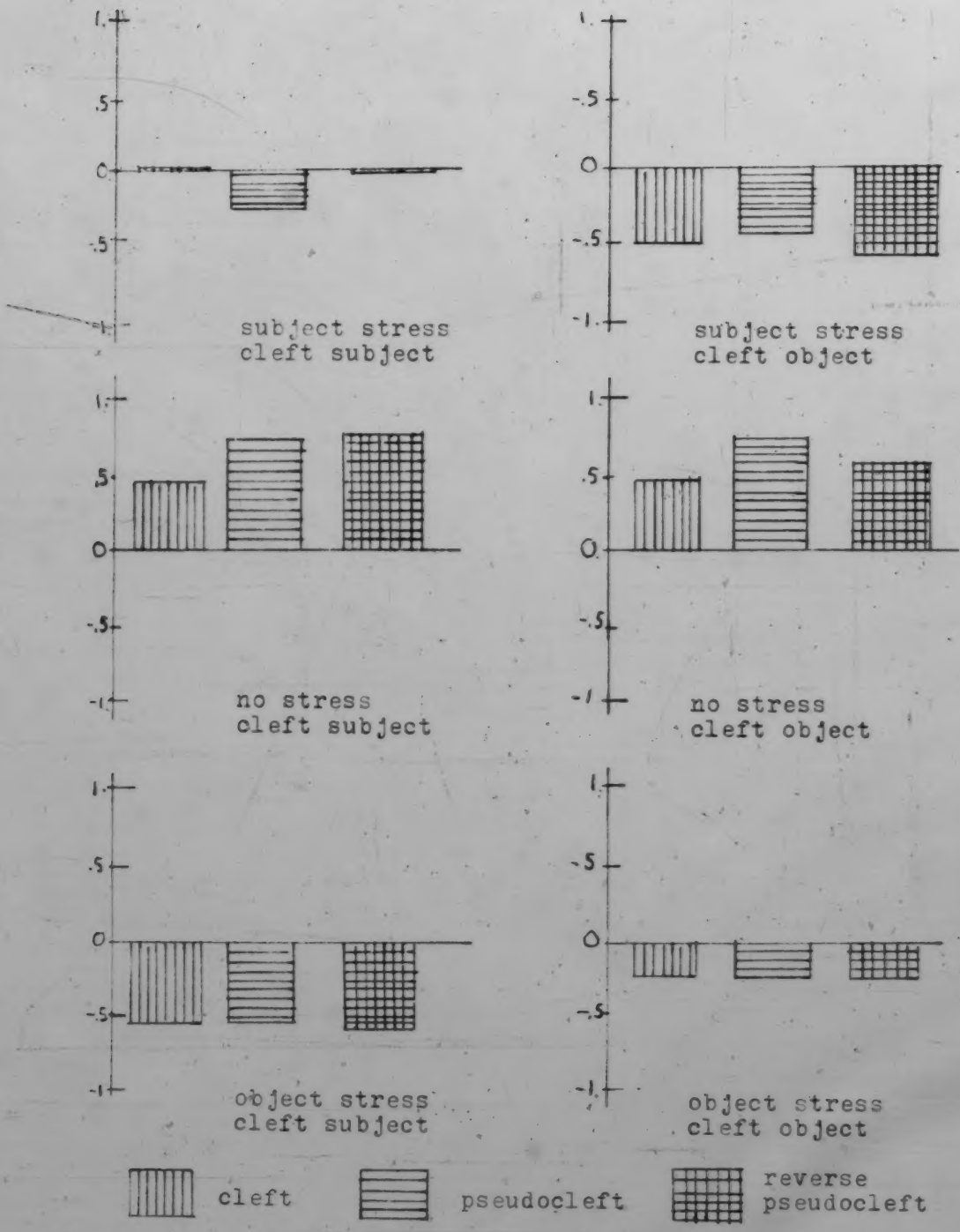


Figure 3. Mean standardized similarity ratings as a function of the cleft and stress configuration for the Stress Group.

TABLE 3

RESULTS OF ANOVA FOR LINEAR GROUP

Source	df	Mean Square	F	Sig.
Mean	1	0.030	0.015	ns
S(NP stressed)	2	8.365	4.144	0.025
C(NP clefted)	1	126.226	62.528	***
T(Cleft type)	2	1.819	0.901	ns
SC	2	33.021	16.357	***
ST	4	0.398	0.197	ns
CT	2	79.164	39.215	***
SCT	4	2.363	1.170	ns
I(SCT)(Subjects)	270	2.018	2.540	***
R(ISCT)(Replications)	316	0.794		

The Stress Group

The third group identified by the hierarchial clustering program was the contrastive stress group. It consisted of 17 members or 23.9% of the sample. The results of the analysis are of variance performed on this group are summarised in Table 4. The analysis of variance suggested that two interactions are significant: The interaction between stress and constituent clefted, S x C, and interaction between stress and the cleft type, S x T.

As in the other subgroups, the stress-clefting interaction reflects the fact that clefting was considered to have similar effects as stressing. In comparing the means

which comprise this interaction it was found, using a Scheffé a posteriori test, that subjects were rating sentence pairs which cleft and stress the same constituent as more similar to each other than sentence pairs which stress and cleft different constituents. The results were significant ($p<0.01$).

In order to interpret the S x T interaction, the means which composed this interaction were investigated. As before, the Scheffé criterion for a posteriori comparisons was used. It was found that the cleft sentence was less similar to the unstressed sentence than either the pseudocleft or the reverse pseudocleft sentence. This difference was significant ($p<0.05$), suggesting that the cleft sentence is marked in some way for members of this group. Its special status could arise out of two different sources: either the subjects are more familiar with the cleft sentence than the other members of the cleft sentence family, or, the subjects are sensitive to the special stress that is associated with the clefted constituent in the cleft sentence. As previously mentioned the stress given to a cleft sentence is often the sole characteristic that distinguishes it from a non-restrictive realative clause (see Chapter 2). As a result of the functionally significan role that this stress plays in English, subjects in this group may be highly sensitised to it.

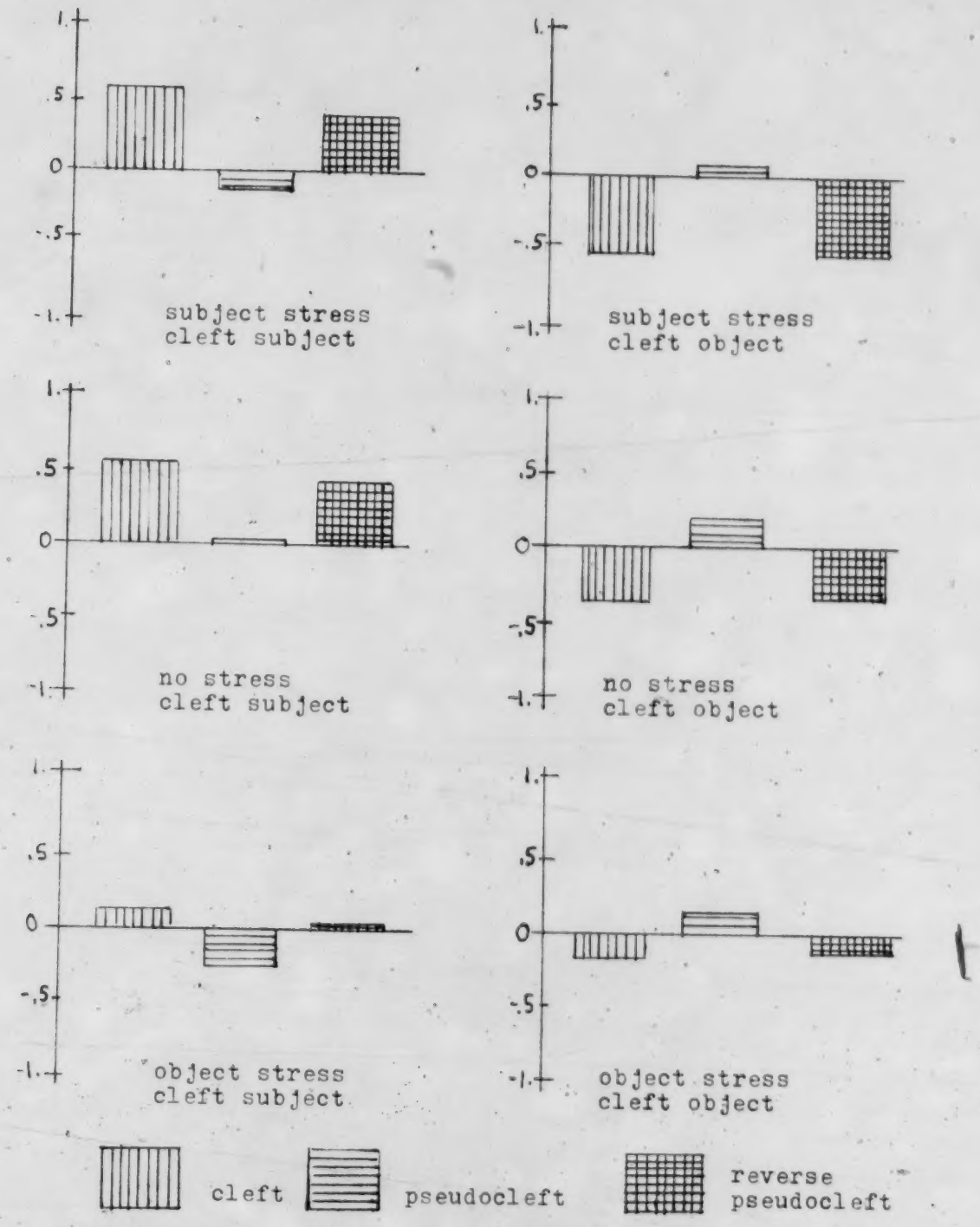


Figure 2. Mean standardized similarity ratings as a function of the cleft and stress configuration for the Linear Order Group.

TABLE 4

RESULTS OF ANOVA FOR STRESS GROUP

Source	df	Mean Square	F	Sig:
Mean	1	0.004	0.009	ns
S(NP stressed)	2	371.294	251.295	***
C(NP clefted)	1	3.014	2.040	ns
T(Cleft type)	2	1.963	1.328	ns
SC	2	46.342	31.365	***
ST	4	5.358	3.626	0.01
CT	2	2.536	1.716	ns
SCT	4	2.164	1.464	ns
I(SCT)(Subjects)	288	1.477	2.115	***
R(ISCT)(Replications)	3366	0.698		

Conclusions

In the study, three distinct subgroups were identified. In each of these subgroups an interaction between clefting and stressing was observed. The groups, however, differ in the role that linear order and contrastive stress play.

In the largest group, the cleft-focus group, all members of the cleft sentence family were considered to be effective focusing devices. Front clefting devices were more effective than back clefting devices. When a front clefting device focusses a constituent, the resulting sentence was considered to be more similar to the correspon-

ding contrastively stressed sentences than to the normally stressed sentence. Thus, front clefting devices were both focus and emphasis devices. Back clefting devices, like front clefting devices, focused the constituent that they clefted. They did not, however, manifest any so-called emphasis behavior.

The stress group was similar to the cleft-focus group in that all members of the cleft sentence family were considered to be focusing devices. No constructions, however, were considered to be emphasis devices. This result may have arisen out of subjects' high sensitivity to stress and intonation.

Andrew (1974) reported that subjects differed in the way in which they interpreted contrastively stressed sentences. Some subjects were very sensitive to word order while other subjects were very sensitive to contrastive stress. The two minor groups identified in this study reflected a similar split in strategies. Some are highly sensitive to word order, others are highly sensitive to contrastive stress. The linear order group appears to be sensitive to the linear oder of constituents, while the contrastive stress group appears to be sensitive to contrastive stress. As such, these two groups are probably comparable to the subjects at either end of Andrew's contrastive stress-linear ordering continuum. The strategies identified by Andrew continue to play a role in the interpretation of the importance of elements.

The Problem of Ad Hoc Interpretations

This study and the work of Andrew (1974) share the common weakness that rather than measure the subject's focusing behavior, they measure some strategy that the subject has adopted for the purpose of the task. In each study subjects were asked to identify the most important word in a sentence. Outside of the laboratory such an activity does not form part of the everyday uses of language. As such, these experiments may reflect more of the inventive aspects of the way people can play with language rather than reflect something which is of pertinence in the day-to-day interpretation of everyday speech. This question is especially important in the discussion of the two minor groups.

Rather than respond to the focus characteristics of the cleft sentences, the members of the linear order group may have merely concentrated on the linear order of the words in the sentences. Similarily, rather than interpret the sentences in the experiment, the stress group may have been matching the words in the various sentences according to loudness. In other words, there are some low level phenomena which the subjects could have used without even having to interpret the sentences. It is possible to explain the behavior of the subjects in the two minor groups on the basis of these phenomena alone.

While the interpretation of this experiment in terms of focus is not unequivocal, the work of Fletcher (1973)

provides some collaborating evidence. Fletcher (1973) approached the concept of focus through the use of the Question Test (see Chapter 3). In his study, Fletcher found three groups of subjects which in some ways corresponded to the three groups found in this study. Fletcher's largest group, like the largest group found in this study, interpreted all the members of the cleft sentence family as focusing devices. Fletcher's second group, like the linear order group in this study, interpreted the cleft and the reverse pseudocleft sentences as focusing devices. Fletcher's third group, the low focus group, did not correspond to the third group in this study. Unlike the third group in this study, Fletcher's third group did not manifest any overt focusing behavior. However, the difference between Fletcher's low focus group and the stress group in this study may be more apparent than real.

It is possible that the third group in each study contain subjects that are highly sensitive to intonation. The apparent differences between the groups may have arisen fron the difference in mode of presentation of the experimental stimuli. In this study, the sentences were presented aurally by a tape recorder. In Fletcher's study, the subjects read the sentences to themselves. The lack of systematicity of their responses may have arisen out of variations in the way in which they read them to themselves in conjunction with their high reliance upon intonation in determining the focus of the sentence. The lack of focus behavior in Fletcher's study could have been caused by the

lack of overt prosodic cues. Rather than be a low focus group, the group could have been a high intonation group.

The existence of the parallel groups in this study and in Fletcher's study suggests that both experiments were measuring the same phenomena. As such these results are encouraging. They should not, however, be taken without some reservation.

The emergence of the parallel groups in the two studies is the result of two different experiments given to two different sets of subjects with two different educational backgrounds. As such, the conclusion that the two different groups were manifesting the same strategies for the two tasks is weak. A stronger way of studying the relationship between the subjects and their response strategies would be to perform both experiments with the same subjects. If the members of the low pseudocleft group (as defined by Fletcher's experimental method) correspond to the linear order group (as defined by the experimental procedures outlined in this study) one can conclude that the members of this group were using closely related experimental strategies in both experiments. The same test could be performed on the other groups. Matchings among the three groups would support the notion that both experiments were measuring the same thing. This in turn would help to remove the questions about the ad hoc nature of the results of this experiment.

In other words, the question of the ad hoc nature of the experimental results can only be dispelled as the

notion of focus is investigated using numerous different experimental techniques. This is in line with the general observation made by many philosophers of science that the validity of a conclusion from an experiment is ultimately a question of collaborative evidence (see Bridgeman, 1961, Margenau, 1950, and Toulman 1961). In short, further experimentation is required.

Two Approaches to Experiments, Language and Grammar

The results of this experiment can be interpreted in two different ways by linguists. According to one approach, linguists could conclude that while the results are interesting and while the results shed some light on the way people use language, the results themselves do not have to be directly incorporated into a grammar of English. According to this traditional approach, experiments are tangential to the goals of linguists. Furthermore, according to this approach, the linguist's task is that of constructing the most highly internally motivated grammar to capture a native speaker's intuition.[1] To this type of linguist, the experimental results of this study suggest that he shall look at his formally motivated grammar in the light of the role of contrastive stress, clefting and linear order. He, however, is under no pressure to incorporate them directly.

The second approach claims that the results of language experimentation have a direct and useful role in the

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1 For a critique of this view see Prideaux 1971, 1972.

construction and justification of grammars. Investigators who share this view emphasise the experimental as opposed to the formal justifications of grammars. The grammars which they construct are directly interpretable in terms of experimental observations.

The relevance of the experimental results for each of these approaches to the study of language will now be investigated. The relevance for those who adhere to the traditional approach to language study will be dealt with first.

Relevance for Grammarians

In each of the subject groupings, the stimulus characteristics of linear order, contrastive stress, and clefting played a significant role in describing subjects' behavior. While the response profiles differed across the groups, each of the group's performances can be interpreted in terms of these characteristics. Different linguists have given different amounts of attention to the phenomena of linear order, contrastive stress, and clefting. Transformational grammarians centered their attention on the cleft constructions. The London and Prague Schools have centered their work on word order phenomena. Chafe and Bolinger have emphasised contrastive stress. The problem for the linguist is, given the results of experiments similar to the experiment reported here, where and how will he incorporate them into the current body of linguistic knowledge.

Relevance for Prague School Studies

One of the characteristics of the Prague School approach is that it claims that there are two favored positions in the sentence, initial position and terminal position. The terminal position is most important in normal and "nonemphatic" speech while the initial is most important in nonnormal or "emphatic" speech. In the present study as well in Andrew's work and Fletcher's work, the initial position of the sentence is judged to be the most important position. Accordingly, the results of the present study might be compatable with the Prague School analysis of "emphatic" speech. It is unlikely that the question and answer sequence can be considered always to be an emphatic context and therefore it is unlikely that the Prague School interpretation of word order is an apt characterisation of English.

Relevance for Transformational Grammar

The transformation field has undergone two distinct trends in recent years. One trend has been to develop abstract and complex representations in order to capture the largest number of systematic relationships and linguistically significant generalisations. This trend is exampli-fied by the Generative Semanticists. The other trend has been towards the development of grammars in which the operations described are easily interpretable. This latter trend has been explored, for example, in a recent paper by

Langacker (1974), who sought to develop a relationship between movement rules and the notion of "relative prominence of objective content". He concludes (1974, p. 661) " ... functional considerations are of prime importance to syntactic phenomena". Within the recent trend towards the functional interpretation of grammatical phenomena, this and other experiments have much to contribute, but care must be taken in determining which of two types of functionalism is being discussed. The traditional use of the term is to relate the role of a construction or an element to the rest of the grammar. Such an approach has been taken by linguists such as Martinet (1958). The second type of function is the function associated with the Prague School. This type of function relates some systactive behavior to extralinguistic goals (see Chapter 2). This study has concentrated on this latter type of functionalism since it investigated at the way in which devices signal the importance of the information they are carrying.

The present study suggests that word order plays a separate and distinguishable role in sentence interpretation and that subjects interpret the various members of the cleft sentence family in light of this role. The results of the experiment also suggest that subjects differ in their sensitivity to this phenomena. To the adherents of the traditional (transformational) approach to the study of language, such observations may be incorporated into their formal description through what Kisseberth has called a 'functional conspiracy' (see Kisseberth, 1970). According

to this approach, collections of formally motivated rules may be grouped together according to the way they contribute to the formation of certain surface regularities. While these rules are motivated by such considerations as simplicity and productivity, they can be viewed as interacting to achieve certain surface level patterns.

The results of this experiment suggest that fronting rules may be functionally interpreted as a way of increasing the priminence of the fronted constituent. Such an observation is consistent with much current discussion (see Chapters 2 and 3).

The second approach to the study of language, the experimental approach, is that of constructing directly interpretable grammars. The results of this study, especially the existence of the subgroups, highlights certain problems of this approach.

One or Many Grammars - A Misplaced Controversy

When faced with the differences in the way people use their language, a linguist is faced with the question of either writing one grammar for the language which is related to all the ways in which people use language; or, writing one grammar for each of the patterns of behavior. This dilemma reflects the degree of uncertainity of the degree of reality which linguists like to attribute to their grammars. Those who opt for the one grammar solution opt for the realist's view of grammar. According to this viewpoint the grammar represents, in some fashion, language

knowledge of speakers. Those who opt for the many grammar solution opt for the nominalist's viewpoint of grammar, according to which a grammar is a characterization of the language as it is spoken by an individual. The realist criticizes the nominalist for holding a view that, if it were correct would predict that no two people could understand one another. The nominalist criticizes the realist as being a cultural imperialist since the language which is closest to the realist's grammar is the highly articulated language of the educated classes.

The debate between the realist and the nominalist is based upon the misconception that the realist and the nominalist are attempting to interpret their grammars in the same way. Such an assumption is false..

The realist will seek to interpret his grammar as a representation of what an individual knows about his language. The experimental paradigm for this investigator is to study the child and his acquisition of his native language. As the child gains new insights to his language these insights are reflected in the way that the child speaks or understands his language. By studying what a child learns, the investigator can determine what it is to know a language.

The nominalist, on the other hand, seeks to view his grammar as a key to study the social phenomena around him. Differentiations in the grammar are significant to the extend that they covary with other social indices. Differences in grammars are motivated to the extent that they

reflect differences in a society. For the nominalist the covariate study of language forms the paradigm for linguistic research.

The observations made in this study are impervious to whichever of the above interpretations of grammar is used. For the realist, the results suggest that it would be profitable to study the acquisition of strategies for the interpretation of the cleft sentence family in conjunction with the interpretation of linear order and contrastive stress. For the nominalist, the existence of distinct populations of individuals in the study suggests the investigation of the way the choice of interpretation covaries with various class indicators and education level. Regardless of the interpretation placed on a grammar, the results of this experiment suggest new areas for investigation.

Towards New Regularities

The purpose of this study was to investigate experimentally a set of language structures, the cleft sentence family. According to the transformational tradition (see Chapter 2), this formal systematicity should be reflected in the behavior of the subjects unless hindered by some performance factors. The notion of performance factors is a stop gap measure created in order to explain away discrepancies between predictions made in the grammar and actual behavior. In the academic domain, the competence-performance distinction's function was to encourage linguists to

to ignore information about actual subjects and their language usage. It has been shown that not only does language exhibit certain regularities but that groups of subjects exhibit certain regularities.

In the early sixties M. Joos was criticised by the then new transformational school for his claim that languages can vary without pattern or constraint (see Joos, 1958 and Chomsky & Halle, 1968). The transormationalists argued that all languages were systematically patterned and the range of possible variation in a language was constrained. Chomsky (1968) also suggested that this systematic patterning was reflected in the competence of the native speaker. If individuals did not manifest this systematicity, then this was taken to be a reflection of certain performance factors: an actual speaker could be flawed and nonsystematic. If the so-called transformational revolution was based on the convictions of the regularity and systematicity of language, perhaps in the near future a psychol-linguistic revolution will be based upon the conviction of the regularity and systematicity of the individual.

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APPENDIX A

EXPERIMENTAL INSTRUCTIONS READ TO THE SUBJECTS

This is an experiment to investigate how some parts of a sentence are emphasized and marked as important. Native speakers of English often feel that some words in a sentence are more important than others. This has aroused the interest of linguists. Recently, linguists have suggested that by changing the grammatical form of the sentence one can change the relative importance of its words. Consider the following two sentences.

(1) Isabel killed the rat.
(2) ISABEL killed the rat.

In the second sentence, the word "Isabel" has been emphasized. Most native speakers would agree that the word "Isabel" is more important in the second sentence than in the first sentence. Once again,

(1) Isabel killed the rat.
(2) ISABEL killed the rat.

This second sentence is called a contrastively stressed sentence.

There are other ways besides the use of the voice to change the importance of words in a sentence. One of these

ways is to use different sentence constructions. In this study we would like to compare the effectiveness of various sentence constructions with that of contrastive stress.

If you turn to the first page of the experimental booklet you will find a set of three pairs of sentences. The top sentence in each pair is called the target sentence. The bottom sentence is the stimulus sentence. In sentence pair A the target sentence is "The porcupine chewed the PIANO", while the stimulus sentence is "It was the piano that the porcupine chewed". In this study the target sentence may or may not contain a word that is underlined and in capitals. If it does, then that word is to be contrastively stressed or emphasi ed. In our example the word "piano" has been emphasized or contrastively stressed.

Within the target sentence and the stimulus sentence words vary in their relative importance. We would like you to rate the degree to which sentences the stimulus sentence and the target sentence give the same amount of importance to their most important word. We would like you to rate this similarity on a seven point scale. Ratings at the lower end ot the scale are to be given to those sentence pairs which give the same amount of importance to the same word. Ratings at the upper end of the scale are to be given to those sentences which emphasize different words. Sentence ratings of 1, 2, or 3 are to be used for those sentences which emphasize the same words. If the sentences emphasize the same word to the same degree

then the sentence pair should be given a rating of 1. If they emphasize the same words but to different degrees, they should be given a rating of 2, or 3. The greater the difference in emphasis, the higher the rating should be. If the two sentences emphasize different words, then they should be given a rating from 5 to 7. The rating 7 is reserved for those sentences which sharply emphasize different words while the ratings closer to 4 are for sentences which emphasize different words but to a lesser degree. The rating of 4 is reserved for undecided responses.

We would like you to indicate your rating by circling the number which corresponds to your response.

In this experiment we will read out the pair of sentences. In all the booklets the target sentences, the first sentence of the pair, will be printed. One half of the people in the room will have books in which the stimulus sentence is also printed. We will read the sentence pair out to you and then you will be given time to circle your response in the response sheet. You won't be given too much time to think or puzzle over your responses. In fact we do not want you to spend too much time puzzling over your responses as we are interested in your first impressions. We are studying normal language use and since people do not spend five minutes over what they are going to say next, we do not want you to spend five minutes. Rather we are interested in your immediate responses. Listen to the words and give us your first impressions.

We shall now do some sample sentences to see if you have any questions.

-- Practice Sentences --

When doing this study please remember that there are no right or wrong answers. The study is broken into two sections. There will be a very short break after the first section. Thank you.

APPENDIX B

EXPERIMENTAL SENTENCES IN PRESENTATIONAL ORDER

1 The ACID poisoned the biologist.
The acid was what poisoned the biologist.

2 The technician kicked the COMPUTER.
The technician was the one who kicked the computer.

3 The LATHE injured the machinist.
The lathe was what injured the machinist.

4 The MAJOR carried the captain.
It was the captain that the major carried.

5 The butler served the coffee.
The butler was the one who served the coffee.

6 The acid poisoned the BIOLOGIST.
The acid was what poisoned the biologist.

7 The fire cracked the GRILL.
It was the grill that the fire cracked.

8 The BASEBALL hit the umpire.
What hit the umpire was the baseball.

9 The guard lost the key.
It was the key that the guard lost.

10 The trucker punched the POLICEMAN.
The one who the trucker punched was the policeman.

11 The lathe injured the machinist.
What injured the machinist was the lathe.

12 The TEACHER paid the pupil.
The one who the teacher paid was the pupil.

13 The acid poisoned the biologist.
The acid was what poisoned the biologist.

14 The butler served the COFFEE.
It was the coffee that the butler served.

15 The MAJOR carried the captain.
The one who carried the captain was the major.

16 The TECHNICIAN kicked the computer.
It was the technician that kicked the computer.

17 The storm flooded the BASEMENT.
It was the basement that the storm flooded.

18 The butler served the coffee.
What the butler served was the coffee.

19 The fire cracked the GRILL.
It was the fire that cracked the grill.

20 The MAJOR carried the captain.
The captain was the one who the major carried.

21 The trucker punched the POLICEMAN.

The one who punced the policeman was the trucker.

22 The ladder scraped the wall.

It was the ladder that scraped the wall.

23 The acid poisoned the BIOLOGIST.

It was the biologist that the acid poisoned.

24 The fire cracked the grill.

What cracked the grill was the fire.

25 The major carried the captain.

The major was the one who carried the captain.

26 The LADDER scraped the wall.

What scraped the wall was the ladder.

27 The butler served the coffee.

It was the coffee that the butler served.

28 The trucker punched the policeman.

It was the policeman that the trucker punched.

29 The baseball hit the umpire.

The baseball was what hit the umpire.

30 The TECHNICIAN kicked the computer.

The one who kicked the computer was the technician.

31 The major carried the CAPTAIN.

The major was the one who carried the captain.

32 The teacher paid the PUPIL.

The teacher was the one who paid the pupil.

33 The lathe injured the machinist.

The one who the lathe injured was the machinist.

34 The ACID poisoned the biologist.

It was the biologist that the acid poisoned.

35 The FIRE cracked the grill.

It was the fire that cracked the grill.

36 The guard lost the key.

The one who lost the key was the guard.

37 The TRUCKER punched the policeman.

It was the policeman that the trucker punched.

38 The STORM flooded the basement.

The store was what flooded the basement.

39 The GUARD lost the key.

It was the key that the guard lost.

40 The MAJOR carried the captain.

It was the major that carried the captain.

41 The lathe injured the machinist.

The machinist was the one who the lathe injured.

42 The storm flooded the BASEMENT.

The basement was what the storm flooded.

43 The BUTLER served the coffee.

The one who served the coffee was the butler.

44 The GUARD lost the key.

The key was what the guard lost.

45 The baseball hit the umpire.

The umpire was the one who the baseball hit.

46 The technician kicked the computer.

It was the computer that the technician kicked.

47 The lathe injured the MACHINIST.

The lathe was what injured the machinist.

48 The fire cracked the GRILL.

What cracked the grill was the fire.

49 The storm flooded the basement.

What flooded the basement was the storm.

50 The baseball hit the umpire.

The one who the baseball hit was the umpire.

51 The LADDER scraped the wall.

The ladder was what scraped the wall.

52 The major carried the captain.

It was the major that carried the captain.

53 The guard lost the KEY.

The one who lost the key was the guard.

54 The trucker punched the policeman.
The policeman was the one who the trucker punched.

55 The technician kicked the COMPUTER.
It was the computer that the technician kicked.

56 The LADDER scraped the wall.
The ladder was what scraped the wall.

57 The teacher paid the pupil.
The one who the teacher paid was the pupil.

58 The LATHE injured the machinist.
It was the lathe that injured the machinist.

59 The STORM flooded the basement.
What the storm flooded was the basement.

60 The TECHNICIAN kicked the computer.
The technician was the one who kicked the computer.

61 The ladder scraped the WALL.
What scraped the wall was the ladder.

62 The teacher paid the PUPIL.
The pupil was the one who the teacher paid.

63 The lathe injured the machinist.
The lathe was what injured the machinist.

64 The baseball hit the UMPIRE.
It was the baseball that hit the umpire.

65 The trucker punched the policeman.
The trucker was the one who punched the policeman.

66 The teacher paid the pupil.
The pupil was the one who the teacher paid.

67 The technician kicked the computer.
The one who kicked the computer was the technician.

68 The ladder scraped the WALL.
What the ladder scraped was the wall.

69 The storm flooded the BASEMENT.
What flooded the basement was the storm.

70 The butler served the coffee.
The one who served the coffee was the butler.

71 The baseball hit the UMPIRE.
The umpire was the one who the baseball hit.

72 The acid poisoned the biologist.
The biologist was the one who the acid poisoned.

73 The TRUCKER punched the policeman.
The policeman was the one who the trucker punched.

74 The fire cracked the grill.
It was the grill that the fire cracked.

75 The BUTLER served the coffee.
The butler was the one who served the coffee.

76 The GUARD lost the key.

The one who lost the key was the guard.

77 The MAJOR carried the captain.

The one who the major carried was the captain.

78 The STORM flooded the basement.

It was the storm that flooded the basement.

79 The fire cracked the grill.

It was the fire that cracked the grill.

80 The BUTLER served the coffee.

It was the butler that served the coffee.

81 The major carried the captain.

It was the captain that the major carried.

82 The guard lost the KEY.

The key was what the guard lost.

83 The FIRE cracked the grill.

What the fire cracked was the grill.

84 The TEACHER paid the pupil.

The pupil was the one who the teacher paid.

85 The storm flooded the basement.

What the storm flooded was the basement.

86 The TECHNICIAN kicked the computer.

It was the computer that the technician kicked.

87 The lathe injured the MACHINIST.

It was the machinist that the lathe injured.

88 The LADDER scraped the wall.

It was the wall that the ladder scraped.

89 The fire cracked the GRILL.

The fire was what cracked the grill.

90 The major carried the captain.

The captain was the one who the major carried.

91 The ACID poisoned the biologist.

The one who the acid poisoned was the biologist.

92 The TEACHER paid the pupil.

It was the teacher that paid the pupil.

93 The fire cracked the grill.

What the fire cracked was the grill.

94 The ladder scraped the wall.

The wall was what the ladder scraped.

95 The butler served the COFFEE.

The coffee was what the butler served.

96 The teacher paid the PUPIL.

The one who paid the pupil was the teacher.

97 The technician kicked the COMPUTER.

The one who kicked the computer was the technician.

98 The lathe injured the MACHINIST.
The one who the lathe injured was the machinist.

99 The STORM flooded the basement.
What flooded the basement was the storm.

100 The ladder scraped the WALL.
The ladder was what scraped the wall.

101 The teacher paid the pupil.
The one who paid the pupil was the teacher.

102 The guard lost the KEY.
What the guard lost was the key.

103 The butler served the coffee.
It was the butler that served the coffee.

104 The storm flooded the BASEMENT.
It was the storm that flooded the basement.

105 The acid poisoned the biologist.
It was the biologist that the acid poisoned.

106 The GUARD lost the key.
It was the guard that lost the key.

107 The technician kicked the COMPUTER.
The computer was what the technician kicked.

108 The teacher paid the pupil.
It was the teacher that paid the pupil.

109 The TRUCKER punched the policeman.
The trucker was the one who punched the policeman.

110 The LATHE injured the machinist.
The one who the lathe injured was the machinist.

111 The butler served the COFFEE.
What the butler served was the coffee.

112 The TECHNICIAN kicked the computer.
The computer was what the technician kicked.

113 The storm flooded the basement.
It was the basement that the storm flooded.

114 The trucker punched the policeman.
It was the trucker that punched the policeman.

115 The baseball hit the UMPIRE.
What hit the umpire was the baseball.

116 The major carried the captain.
The one who the major carried was the captain.

117 The guard lost the KEY.
It was the guard that lost the key.

118 The acid poisoned the BIOLOGIST.
The one who the acid poisoned was the biologist.

119 The lathe injured the machinist.
It was the machinist that the lathe injured.

120 The baseball hit the UMPIRE.

It was the umpire that the baseball hit.

121 The ACID poisoned the biologist.

What poisoned the biologist was the acid.

122 The trucker punched the policeman.

It was the trucker that punched the policeman.

123 The storm flooded the basement.

It was the storm that flooded the basement.

124 The TEACHER paid the pupil.

The teacher was the one who paid the pupil.

125 The butler served the coffee.

The coffee was what the butler served.

126 The FIRE cracked the grill.

It was the grill that the fire cracked.

127 The baseball hit the umpire.

It was the baseball that hit the umpire.

128 The major carried the CAPTAIN.

The one who the major carried was the captain.

129 The lathe injured the MACHINIST.

It was the lathe that injured the machinist.

130 The acid poisoned the biologist.

What poisoned the biologist was the acid.

131 The TRUCKER punched the policeman.

The one who the trucker punched was the policeman.

132 The ladder scraped the wall.

It was the ladder that scraped the wall.

133 The fire cracked the grill.

The fire was what cracked the grill.

134 The LATHE injured the machinist.

It was the machinist that the lathe injured.

135 The BASEBALL hit the umpire.

It was the umpire that the baseball hit.

136 The technician kicked the COMPUTER.

What the technician kicked was the computer.

137 The guard lost the key.

The guard was the one who lost the key.

138 The TRUCKER punched the policeman.

It was the trucker that punched the policeman.

139 The ladder scraped the wall.

What the ladder scraped was the wall.

140 The ACID poisoned the biologist.

It was the acid that poisoned the biologist.

141 The teacher paid the pupil.

The teacher was the one who paid the pupil.

142 The baseball hit the UMPIRE.

The one who the baseball hit was the umpire.

143 The guard lost the KEY.

The guard was the one who lost the key.

144 The ladder scraped the WALL.

The wall was what the ladder scraped.

145 The butler served the COFFEE.

The butler was the one who served the coffee.

146 The guard lost the key.

What the guard lost was the key.

147 The baseball hit the umpire.

It was the umpire that the baseball hit.

148 The MAJOR carried the captain.

The major was the one who carried the captain.

149 The ladder scraped the wall.

The ladder was what scraped the wall.

150 The baseball hit the UMPIRE.

The baseball was what hit the umpire.

151 The technician kicked the computer.

The technician was the one who kicked the computer.

152 The teacher paid the PUPIL.

It was the teacher that paid the pupil.

153 The LADDER scraped the wall.
The wall was what the ladder scraped.

154 The major carried the CAPTAIN.
It was the major that carried the captain.

155 The FIRE cracked the grill.
The fire was what cracked the grill.

156 The guard lost the key.
The key was what the guard lost.

157 The lathe injured the MACHINIST.
What injured the machinist was the lathe.

158 The technician kicked the COMPUTER.
It was the technician that kicked the computer.

159 The trucker punched the POLICEMAN.
It was the policeman that the trucker punched.

160 The TECHNICIAN kicked the computer.
What the technician kicked was the computer.

161 The GUARD lost the key.
What the guard lost was the key.

162 The lathe injured the MACHINIST.
The machinist was the one who the lathe injured.

163 The teacher paid the PUPIL.
It was the pupil that the teacher paid.

164 The trucker punched the POLICEMAN.
The trucker was the one who punched the policeman.

165 The BUTLER served the coffee.
The coffee was what the butler served.

166 The baseball hit the umpire.
What hit the umpire was the baseball.

167 The TRUCKER punched the policeman.
The one who punched the policeman was the trucker.

168 The butler served the COFFEE.
The one who served the coffee was the butler.

169 The FIRE cracked the grill.
What cracked the grill was the fire.

170 The technician kicked the computer.
It was the technician that kicked the computer.

171 The STORM flooded the basement.
The basement was what the storm flooded.

172 The acid poisoned the biologist.
It was the acid that poisoned the biologist.

173 The major carried the CAPTAIN.
The captain was the one who the major carried.

174 The fire cracked the grill.
The grill was what the fire cracked.

175 The storm blooded the basement.

The storm was what flooded the basement.

176 The trucker punched the policeman.

The one who punched the policeman was the trucker.

177 The ACID poisoned the biologist.

The biologist was the one who the acid poisoned.

178 The major carried the captain.

The one who carried the captain was the major.

179 The ladder scraped the WALL.

It was the ladder that scraped the wall.

180 The guard lost the KEY.

It was the key that the guard lost.

181 The BASEBALL hit the umpire.

The one who the baseball hit was the umpire.

182 The STORM flooded the basement.

It was the storm that flooded the basement.

183 The acid poisoned the biologist.

It was the acid that poisoned the biologist.

184 The LADDER scraped the wall.

What the ladder scraped was the wall.

185 The fire cracked the GRILL.

What the fire cracked was the grill.

186 The teacher paid the pupil.
The one who the teacher paid was the pupil.

187 The storm flooded the basement.
The basement was what the storm flooded.

188 The GUARD lost the key.
The guard was the one who lost the key.

189 The acid poisoned the BIOLOGIST.
The biologist was the one who the acid poisoned.

190 The TEACHER paid the pupil.
The one who paid the pupil was the teacher.

191 The trucker punched the policeman.
The one who the trucker punched was the policeman.

192 The fire cracked the grill.
The grill was what the fire cracked.

193 The technician kicked the computer.
What the technician kicked was the computer.

194 The BASEBALL hit the umpire.
The baseball was what hit the umpire.

195 The acid poisoned the BIOLOGIST.
What poisoned the biologist was the acid.

196 The TEACHER paid the pupil.
It was the pupil that the teacher paid.

197 The LATHE injured the machinist.

The machinist was the one who the lathe injured.

198 The trucker punched the POLICEMAN.

The policeman was the one who the trucker punched.

199 The teacher paid the pupil.

It was the pupil that the teacher paid.

200 The technician kicked the computer.

The computer was what the technician kicked.

201 The LATHE injured the machinist.

What injured the machinist was the lathe.

202 The major carried the CAPTAIN.

It was the captain that the major carried.

203 The butler served the COFFEE.

It was the butler that served the coffee.

204 The storm flooded the BASEMENT.

The storm was what flooded the basement.

205 The ladder scraped the WALL.

It was the wall that the ladder scraped.

206 The BUTLER served the coffee.

What the butler served was the coffee.

207 The storm flooded the basement.

What the storm flooded was the basement.

208 The BASEBALL hit the umpire.

It was the baseball that hit the umpire.

209 The major carried the CAPTAIN.

The one who carried the captain was the major.

210 The fire cracked the grill.

What cracked the grill was the fire.

211 The guard lost the key.

It was the guard that lost the key.

212 The FIRE cracked the grill.

The fire was what cracked the grill.

213 The acid poisoned the biologist.

The one who the acid poisoned was the biologist.

214 The lathe injured the machinist.

It was the lathe that injured the machinist.

215 The BUTLER served the coffee.

It was the coffee that the butler served.

216 The BASEBALL hit the umpire.

The umpire was the one who the baseball hit.

APPENDIX C

PRACTICE SENTENCES IN PRESENTATIONAL ORDER

1. The porcupine chewed the PIANO.
   It was the porcupine that chewed the piano.

2. The dolphin splashed the major.
   It was the major that the dolphin splashed.

3. The JAILER freed the prisoner.
   The jailer was the one who freed the prisoner.